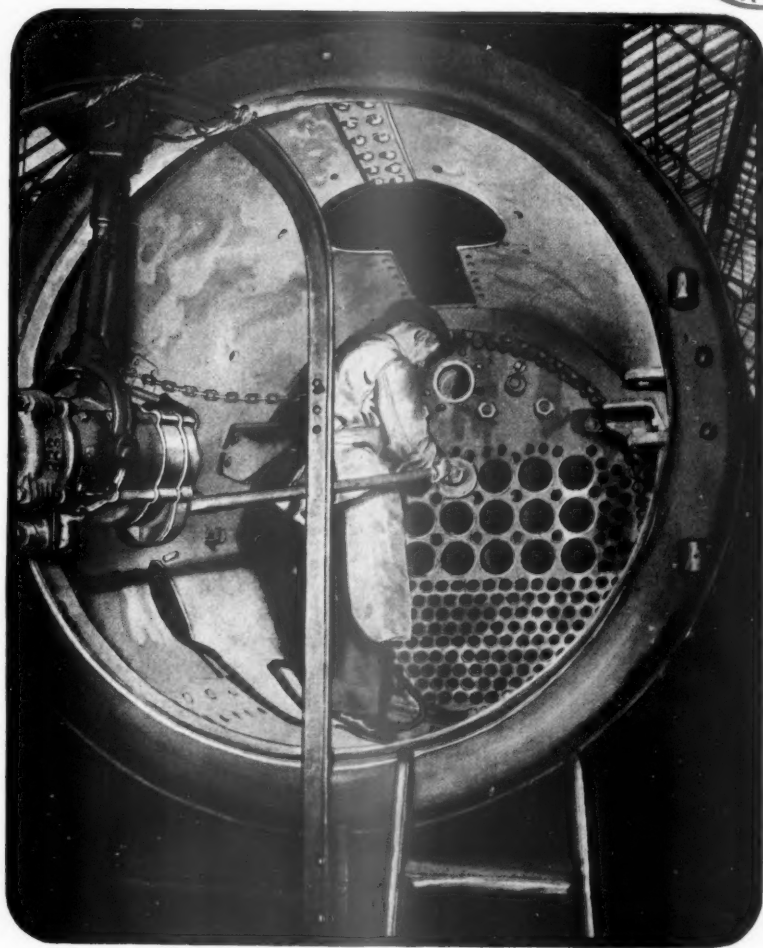


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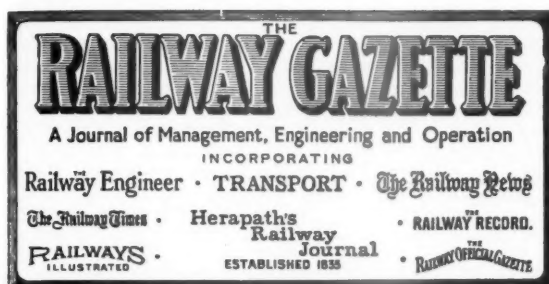
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## Industrial Self-Destruction

THE regrettable factor in the shipyard strike and that threatened in the engineering industry is not that both employers and employees should have taken up positions from which they are reluctant to retreat, but that sectional interests should be put before the overriding requirements of the national economy. Because the building and repair of ships is a lengthy process, the effect of a short stoppage, though serious, is not as important as it would be in general engineering, where speed in meeting orders is one of the most important factors affecting world competition. A stoppage here must have very grave effects in almost all other branches of industry, including those which provide equipment for railways at home and overseas. The effects of an engineering strike on British Railways traffic moreover would be very serious. The appeal of Mr. Harold Macmillan, the Prime Minister, at Leicester last Monday for the acceptance of "some form of arbitration rather than . . . self-destructive struggles" should be heeded. As we went to press the findings of the Railway Staff National Tribunal had been announced on the N.U.R. claim for a 10 per cent increase in the rates of pay of salaried and conciliation

staff; they were not unanimous. The Chairman, Sir John Forster, and Mr. A. J. Espley, the Commission nominee, recommended that the basic rates of pay of salaried and conciliation staff—other than footplate staff to whom an increase of 3 per cent has already been applied as from November 26, 1956—should be increased by 3 per cent from the same date, but Mr. E. Hall, the N.U.R. nominee, thought that the award should be expressed in the form of an added percentage to the 3 per cent recommended by the majority report. The award was discussed between Sir Brian Robertson, Chairman, and other Members of the British Transport Commission, and the union leaders, on Wednesday, when it was agreed to meet again in an attempt to find a solution to the deadlock.

## C.I.M.A.C., 1957

IN our May 11, 1956, issue we commented editorially on the International Congress of Combustion Engines which is to hold its fourth session at Zurich from June 17 to June 25 inclusive this year. We pointed out that, before Mr. W. K. G. Allen, Joint Managing Director of W. H. Allen, Sons & Co. Ltd., and himself a representative on the Permanent Council of C.I.M.A.C., organised a British National Committee, there was no official means of ensuring satisfactory British participation in the sessions. A glance at the list of papers and names of authors published elsewhere in this issue shows the success which has attended Mr. Allen's efforts in the task he assumed a little over two years ago: the high percentage of British papers accepted, in itself an achievement, is a matter for particular congratulation in view of the very high calibre of the total contribution. There is no doubt that free technical exchanges such as that which will take place this year in Zurich are of the very greatest value in promoting further engineering knowledge and subsequent benefit to industry as a whole, and the content of the presented papers is awaited with the very keenest interest by all users and manufacturers of the combustion engine.

## Railway Material for Argentina

THE Argentine Railway Commission which is now in London to purchase railway equipment is handicapped by the fact that the widely-publicised £20,000,000 credit offered to Argentina last year by Baring Bros. & Co. Ltd., on behalf of a group of London bankers, is still under negotiation. It would be better, it is understood, to describe the present offer as one of medium-term credit facilities. The Commission is particularly interested in spare parts for steam locomotives, which are badly needed for the rehabilitation plan for the railways. Of the 4,000 or so steam locomotives in Argentina, some 1,500 are 50 years old, and 1,500 others are between 25 and 50 years old. Few of the remainder have been purchased since 1941, and some 40 per cent of the fleet is out of action awaiting repairs. Much of the neglect of the railways—locomotives are only a representative item—has been the result of political policy which has now been changed, but despite large loans from the U.S.A. and the arrival later this year of diesel-electric locomotives on order in the U.S.A., Canada, and France, steam will have a considerable part to play in building up the railway services again. British manufacturers should be able to help with the spare parts now required and also in the larger work of rehabilitation to come.

## Reorganisation of Federal Railways in Brazil

FAR-REACHING steps to put the Federal Railways in Brazil on a sound financial and management basis are now being taken. The Presidential Bill which has been before Congress since July, 1952, converting the Federal Railways into joint stock companies under the co-ordinating body Rede Ferroviária Federal S.A. (R.F.F.S.A.), has been approved by the Chamber of Deputies with minor alterations introduced by the Senate. R.F.F.S.A., an autonomous Government agency, formed with State and private capital, is to operate, re-equip, extend, and reform the incorporated railways belonging

to or administered by the United States of Brazil, besides those which may in future be transferred to Federal ownership. The initial capital will be subscribed entirely by the Union and will consist in part of the assets of the railways to be incorporated in R.F.F.S.A. The new corporation may issue and market shares to a total value not exceeding twice its paid-up capital, finance the joint stock companies under its control and grant loans or guarantees. It will recommend tariff adjustments, approve budgets, requisition the services of civil or military officials of the Federal and State public services to assist, and organise the staffs of the railways, who will be entitled to all the benefits pertaining to public employees. Any increase in wages and salaries imposed by the Federal Government will entail a compensatory increase in tariffs.

#### Financial Provisions for R.F.F.S.A.

THE revenue of R.F.F.S.A. will be derived from the dividends on shares of the companies under its control, receipts from transport and other activities, proceeds of the improvements tax, and Government subsidies. During the first year of its existence the Union will subscribe 12,000 million cruzeiros to cover the deficits of the incorporated railways; subsequent budgets will provide similar grants, the amounts to be reduced annually by 5 per cent. An initial credit of 500 million cruzeiros will be opened to defray initial expenses and constitute working capital. R.F.F.S.A. will enjoy exemption of duties on all materials imported for its services, similar provisions regarding railway material produced by Brazilian industry being respected. The provision that the corporation is forbidden to grant free or reduced travel facilities, except to its own staff, specified authorities, and Members of the National Congress, seems to point to previous abuses in this respect. Contrary to the original project, the President and Directors are to be elected by the shareholders at a general meeting, instead of being appointed by the President of the Republic.

#### Accounting to Parliament

THE new House of Commons Select Committee on the nationalised industries, which, under Sir Patrick Spens, its Chairman, will hold its first working meeting next week, starts off on a more sensible basis than its predecessor. The former impossible terms of reference have been set aside and the committee, charged with the examination of the reports and accounts of the nationalised industries, is being left to work out its own procedure. This will be directed towards assisting Parliament without encroaching on the responsibilities of Ministers or interfering with the independence of commercial enterprises. This is a narrow line to walk, but if there has to be such a committee—and the close financial relationship between the public corporations and the State probably makes something of the sort inevitable—this seems to be the best way to achieve the desired end. The system to be adopted of inviting the Chairman of the organisation under discussion to appear before the committee to comment on the report and accounts ensures that the industry will be able to state its point of view with authority, but if the proceedings are protracted there is a grave risk that the Chairman will have his energies diverted for too long from the proper business of the industry concerned.

#### Steel for Railway Equipment

IT seems evident that, unless new difficulties arise, the fuel restrictions will not have any great effect on steel production this year, and the industry is talking confidently of a production of 22,400,000 tons in 1957. British Railways and their contractors have been taking increased quantities of steel for some time, and their demands rose from a weekly average of 18,500 tons in 1955 to 21,600 tons in 1956. Provisional figures show that demand rose from 21,300 tons a week in January, 1956, to 24,300 tons in January this year, an increase of 14.1 per cent. The large rolling stock programmes recently announced indi-

cate that this strengthened demand is likely to continue. In the House of Commons recently, Mr. G. R. Chetwynd, Member for Stockton-on-Tees, suggested that shortage of steel might mean that railway modernisation would be slowed down. Mr. R. Maudling, Paymaster-General, admitted that there was a world shortage of steel plate, particularly heavy plate, for which there has been a sudden increase in demand for which the steel industry in general was unprepared. Rolling stock programmes, however, depend on phased supplies of many types of steel, and it remains to be seen whether plate shortage will have an important effect on production for the railways.

#### Main-Line Electrification in Southern Spain

GOOD progress is being made by the R.E.N.F.E. on electrification at 3,000 V. of the line from Madrid to Cordova, en route to Seville and elsewhere in Andalusia, one of the principal main lines of the former Madrid, Saragossa & Alicante Railway (M.Z.A.), and the largest single electrification project ever embarked on in Spain. The section between Santa Cruz de Mudela and Baeza was reported a few days ago to be ready for inauguration of electric working; and work is stated to be well in hand on the remainder of the 276 miles between the capital and Cordova. To ease gradients where the line climbs the Despeñaperros escarpment, in the Sierra Morena, deviations of the main line are being carried out in the neighbourhood of Manzanares, Valdepenas, and Santa Cruz de Mudela. All the more recent electrification of the R.E.N.F.E. has been at 3,000 V., and no use of the 50-cycle system seems to be envisaged at present.

#### Nuclear Power and Education

THE impact of the nuclear power programme on technical education was the theme of the inaugural lecture delivered by Professor J. M. Kay, newly installed first Professor of Nuclear Power in the Department of Mechanical Engineering at Imperial College on Tuesday last. Professor Kay made it abundantly clear that the advent of this new source of power will call for a great increase in technical personnel, but that this will be found in projection of the existing sciences of mechanical, civil and electrical engineering and so forth rather than in a specific new technique. The lecture indeed showed the striking developments which mechanical engineering had undergone since the earliest days of steam power. It is not surprising that a close link with railway development was inherent in the progress which has been made in the mechanical field. Some of the debt which the newest developments owe to railway training are clear from the fact that Sir Christopher Hinton, for example, served his engineering apprenticeship at Swindon. Professor Kay, who is the son of the late J. A. Kay, formerly for many years Editor of *The Railway Gazette*, was himself trained at Crewe and has since had valuable experience for his new important post in both the academic and industrial fields.

#### Promoting the Study of Transport

THE President of the Institute of Transport, Mr. Francis H. Cave, was able to announce the welcome news at the Institute annual dinner last Friday, that good progress was being made in the negotiations for foundation at one of the older universities of a readership and two fellowships in transport economics and organisation, or possibly, in some allied aspect of transport. The scope for work of the utmost practical utility on this subject is great, and it is to be hoped that plans will come to fruition without delay, and—which will not be easy—that the appointments will be filled by suitable men. The importance of the educational work of the Institute was stressed by the guest of honour, Mr. John Maclay, Secretary of State for Scotland and a former Minister of Transport, who, with long experience in addition as a shipowner, is well qualified to speak on this matter. Mr. Cave also



announced that Sir Reginald Wilson, Member of the British Transport Commission and Chairman of the Eastern Area Board, had been elected President of the Institute for 1957-58.

### Modernising British Railways

THE annual luncheon of the Mansion House Association on Transport last Friday was, as usual, an opportunity for a number of people and interests concerned with transport to hear the views on transport expressed by members of the Government of the day. On this occasion, of which a brief description appears on another page, Mr. G. R. H. Nugent, Joint Parliamentary Secretary, Ministry of Transport & Civil Aviation, reiterated the confidence of the Government in the ability of British Railways to avail themselves of the opportunity presented by the Transport (Railway Finances) Act of 1957 to modernise their plant, and, by reducing costs and giving better service, to put themselves on a sound financial basis. He rightly stressed the importance of the part that must be played by railwaymen in any steps to improve the service given. He was, perhaps, less than fair to the former railway companies in referring to "a generation or more of standstill" in improvement of railway plant and equipment, for a great deal had been done and was being done to inaugurate and carry out new works programmes up to the outbreak of war in 1939—hardly a generation ago.

### South African Transport Plans

THE Minister of Transport in the Union of South Africa, Mr. B. J. Schoeman, presenting his estimates to Parliament recently, announced several important development projects for the railways, ports, and air services. He stated that £18,000,000 was earmarked for harbour improvements in the ports, including Walvis Bay. On the railways, besides improvements to the permanent way and to the marshalling yards, electrification and the purchase of rolling stock would be continued. It was proposed to spend £22,000,000 on the provision of railway passenger facilities for native urban townships. The year's accounts showed a deficit of £2,929,000 instead of the surplus of £810,000 for which the Minister had budgeted last year. To balance the estimates for the coming year, Mr. Schoeman proposed a number of increases for low-rated traffic including cement, 5 per cent; coal and coke, 10 per cent; copper ingots, 10 per cent; manganese ore, 10 per cent; iron ore, 5 per cent; and crude asbestos, ores, and minerals, 10 per cent.

### High-Power Diesel Locomotives

TWO quite different ideas as to high-power diesel-electric locomotives are exemplified by the two classes now being put into service on the French National Railways; the two cannot, however, be regarded as alternative solutions to the same problem, for one is intended specifically for the heaviest drag-freight duties over 1 in 90 ruling grades and with comparatively short hauls, whereas the other is for general-purpose duties over secondary main lines where a maximum axle load of 18 tons is welcome. The freight-transfer locomotive, with a weight of 120 tons, all adhesive, and a top speed of 46 m.p.h., has been recorded to attain a starting tractive effort of 79,000 lb., and has a continuous rated tractive effort equal to 18½ per cent adhesion at 25 per cent of top speed. It has a single slow-speed oil engine, notable in having twin vertical banks of cylinders and step-up gearing which gives a generator speed higher than the engine speed. The general-purpose locomotive, on the other hand, though of the same Co-Co wheel arrangement, incorporates two lightweight high-speed oil engines; its continuous rated tractive effort is equal to no more than 13½ per cent adhesion, but it has a simple control arrangement to give different groupings according to whether it is being worked in passenger or freight service, with respective top speeds of 80 and 50 m.p.h.

### Pointless Concessions

DURING the Second Reading debate on the British Transport Commission's Private Bill last week the Joint Parliamentary Secretary, Mr. G. R. H. Nugent, announced two concessions made by the Commission to meet objections raised by Conservative back-benchers who consequently withdrew their opposition and the motions they had placed on the Order Paper. In the one case objection was taken to the disposal and closure of five small lengths of canal no longer in use and serving no useful purpose whatsoever. No objection to their closure had been raised by local authorities or other local organisations and the land could be put to better purpose. In two cases it was required by adjoining industry for expansion, and in two others by local authorities for road development. The Commission had negotiated the sales and stood to receive a few thousand pounds from sale of assets no longer required. Objection was that because the Bowes Committee was inquiring into the future of the canals the Commission should not disturb or dispose of the assets associated with its canal undertaking in the meantime. That might be reasonable enough if the Commission had sought to abandon a major canal still used for navigation, or of possible future use, as it did a section of the Kennet & Avon last year, and which it agreed to maintain pending the Committee's report. But to expect the Commission to retain useless assets which may be a charge on revenues and to refrain from selling them when an attractive offer is received is unreasonable.

It is unfortunate, therefore, that although the Commission's case was sound, because of small-scale and ill-founded objection from a handful of Members of Parliament, it should be forced to make an unnecessary concession with the full support of the Minister. As it happens, this concession seems pointless but the principle of it is wrong and it may set a precedent and encourage similar unjustifiable opposition in future. It is this: the Commission has agreed to ear-mark the monies raised from sale of the canal assets and to place them in a separate fund so that they can be identifiable. The purpose is apparently to ensure that if the Bowes Committee suggests the segregation of the canals from the Commission and transfer to another body, any sums received from sales meantime shall also be transferred. As was pointed out during the debate, by the same token any monies expended on assets *ad interim* should be refunded to the Commission. But this was not conceded.

The other case could have been more serious, as it concerned the closing of a branch line, the "Bluebell Line," between Lewes and East Grinstead. The Commission's claim to close this short and little-used stretch, part of which is single track, was accepted by the South Eastern Transport Consultative Committee in 1955 and its decision was upheld by the Central Committee. This is understandable, as the Commission was losing some £60,000 a year on operating this short branch line, which incidentally carries no freight. Owing to legal doubts, unearthed by opponents to its closure, as to the right of the Commission to close the line, it was reopened and the Commission sought power in the Bill to remove this legal complication. Since it was reopened with four trains a day in place of the six run previously it has been losing at the rate of some £30,000 a year; total takings have been only about £1,000 a year.

Because of the opposition raised in Parliament by the local Members on behalf of their constituents the Commission agreed to resubmit the case to the local Committee. Surely this is unnecessary. It was announced that the Minister of Transport has requested the Chairman of the local Consultative Committee to hold an inquiry locally and to admit the public so that they can be convinced of the Commission's case. It seems unfortunate that the Commission should be put to the trouble and expense of resubmitting its case, and the time of the Chairman and Members of the Committee so unnecessarily occupied when they are unpaid and acting from a sense of public service. Further, if the decision of such

committees, especially after they have been confirmed by a superior committee, are thus liable to be reopened, it will become increasingly difficult to obtain the services of responsible persons to serve on them. It is, therefore, unfortunate that the Minister should have deemed it necessary to surrender to pressure from a handful of his backbenchers rather than to stand by the decisions of the Consultative Committees he himself appoints and the Commission for which he is responsible.

The Commission is by statute enjoined to pay its way. That for the moment its deficits are to be met by direct borrowings from the State in no way diminishes from the requirement that it operates as economically as can be. The modernisation plan now being carried out is designed to enable the Commission to achieve equilibrium by about 1961. In presenting its plan the Commission made it clear that it assumed that it would be free to eliminate services for which there was no longer public need. The two proposals in the Bill which were objected to were directly or indirectly of that nature, and it is to be regretted that neither the Commission nor the Ministry felt strong enough to stand up in one case to sectional opinion, the "Bluebell Line," and in the other to misconceived and ill-informed criticism at the closure of useless lengths of abandoned canals. If such opposition is allowed to succeed in forcing pointless concessions from the Commission with the Minister's backing on all such occasions in the future, the Commission's chance of fulfilling its well-intentioned plan to pay its way within the next five years will be made that much the more difficult if not impossible.

### Progress in Israel

**T**HE General Manager of the Israel Railways, Mr. M. Savidor, has sent us a copy of a statement recently published in Israel and outlining the plans of the railway management for dealing with increased traffic arising from economic development of the country.

To carry the increased output of potash and phosphates, orders are being placed for 56 more phosphate wagons with a capacity of 50 tons each, which will be built by local manufacturers from parts and materials imported under the reparations agreement. Similar steps are being taken to handle the growing indigenous output of cement. As cement is carried in the same type of wagons as citrus fruit, and as the railway will be ready by 1959 to haul 12,000,000 cases of citrus a year, no difficulty is expected in meeting the substantial increase of cement haulage with a fleet consisting of 1,850 box wagons; since the establishment of the State the Israel Railways have purchased 220 in Belgium and 75 in Germany, and Vulcan-Merkavim is building 125 more. The sidings built by the joint effort of the citrus growers and the railways during 1955 and 1956, and others planned for the near future, provide all necessary facilities for meeting the increased haulage.

The management expects an output of 90,000 tons of crude oil from the Heletz fields during the next fiscal year and 22 50-ton tank wagons are awaiting shipment in Germany. Any extra need for movement of crude oil will be met by the existing rolling stock, as the envisaged pipeline between Haifa and Tel Aviv will cut the volume of fuel traffic by rail by about 35 per cent. Sidings have been built and others are planned to serve the Koor Steel Plant at Kiryat Haplada, and other industrial plants, which will result in an increase of railway haulage and also cut industrial production costs through cheaper transport.

Mr. Savidor estimates that his railway will be moving 2,500,000 tons in 1960-61, compared with 1,300,000 tons in 1955-56. It will be necessary to put into service three more main-line diesel locomotives and to replace the 28 steam engines still working in marshalling yards and on short-haul trips by eight more diesel shunters, in addition to the German-built diesel shunting locomotives on order, of which five are already in service. The resultant operating economies are expected to be considerable, not least in obviating the present numerous failures of obsolete steam engines. All motive power is due to be diesel by next year.

The population of Israel will be some 2,000,000 by 1960, and it is estimated that the railways will then be carrying about 6,000,000 passengers a year, compared with 2,500,000 in 1953-54 and some 4,500,000 in 1956-57. It is planned to run 12 trains daily each way on the Haifa-Tel Aviv line in 1958-59, though the new signalling, which will be completed by the end of this year, allows for many more. The express trains on this line will cover the distance in 1 hr. On the Haifa-Jerusalem line it is hoped to cut the travelling time to just over 3 hr. Mr. Savidor points out that his administration is ready to open a regular passenger service to the Gaza Strip if and when appropriate measures are taken. For this purpose it will be necessary to add only eight intermediate trailers to the 10 three-car or four-car diesel sets.

The main reason given for the railway working deficit, which was IP. 2,531,000 for the year ended March, 1955, is the Government tariff policy, the railway being considered as a means of promoting exports. Their contribution to the economy of the country has so far been remarkable. For example, Mr. Savidor observes, if the Citrus Board had to transport by road the 6,000,000 cases carried by rail they would have to spend an extra IP. 550,000. The export of phosphates and potash, which are transported by rail from Beersheba to Haifa, is actually subsidised through the medium of the railways by means of a prohibitive rate of 16 pruta (1,000 pruta = IP. 1) per ton-km., whereas out-of-pocket costs alone in 1955-56 amounted to 16.8 pruta per ton-km. Nevertheless the management is confident of its efforts to break even 1960-61, even if the present tariff policy is maintained or kept in line with the rise in salaries and fuel and material costs. The Israel Railways are one of the very few systems in the world with no link with the neighbouring countries, which accounts for their present restricted hauls and lack of international traffic; but as active members of the International Union of Railways they are ready in every field for the opening of services across the frontiers.

### Standard Equipment for Overseas Railways

**T**HE standardisation of railway equipment offers considerable advantages to both the manufacturer and user. To the manufacturer it means cheaper production, and to the user quicker deliveries and a reduction in stores stock with its attendant advantages. In his paper entitled *Unification of Freight Vehicles on Overseas Railways*, delivered before the Institution of Locomotive Engineers on March 20, Mr. A. Campbell, a former President of the Institution, and formerly Chief Mechanical Engineer, Crown Agents for Oversea Governments & Administrations, referred to the considerable progress made in the standardisation of equipment on the railways in colonial territories in the British Commonwealth, more particularly those on the African Continent, of metre and 3-ft. 6-in. gauge. Progress in the early days was slow, Mr. Campbell points out, as many of the original standards adopted had to outlive their usefulness before a change could be made, but definite progress towards unification was being made on the outbreak of war in 1939.

As the area of hostilities covered most of the world, the demands on the transport systems brought into prominence the strategic value of the overseas narrow-gauge systems, and at the same time also brought into much greater prominence, the very great variations in loading gauge dimensions and the design of freight stock and fittings. The Crown Agents were approached as to the possibilities of designing standard vehicles suitable for operating on the one metre and 3-ft. 6-in. gauge tracks. Specifications and drawings were placed at the disposal of the authorities, and the outcome was the standard and open goods wagons from the U.S.A. These vehicles were mass produced to a common standard capable of operating on both gauges, the only variants being the position of the wheels, the standard coupling and drawgear in use on any particular system, and type of power brake in use.

The vehicles, although built for a short war life, operated generally satisfactorily, and, as Mr. Campbell

observes, showed that standard units could fulfil the general needs of railways whose track gauges, and maximum loading dimensions did not vary greatly. After the end of the war in 1945, with the rehabilitation of railway systems, smaller railways had little chance of getting a quota of the available building capacity or delivery within a reasonable period. As this seriously affected some of the systems, a Colonial Railway Standards Conference was convened in March, 1950, attended by senior officers of the respective railways; this was referred to in *The Railway Gazette* of March 17, 1950. The conclusions of the conference were, that ample scope existed for further investigation into the unification and standardisation of equipment on colonial railways. In convening the second conference in 1952 it was decided to widen its scope with respect to those railways in Africa within the Commonwealth, and the South Africa, Rhodesia, Nyasaland, and Sudan Railways were represented.

In referring to the degree of standardisation already agreed to, Mr. Campbell observed that several of the railways were proceeding with the relaying of sections of track with rails of 80 and up to 95 lb. An axleload of 17 tons was recommended for adoption as a standard where the heavier rail permitted, and although no decisions have been made as to general characteristics of vehicles, it was agreed that designs of bogies, wheels, and axles, and related parts should be prepared. Consideration has therefore been given to the design of bogies and components for 13 and 17-ton axle loading. Considerable progress has been made towards implementing the recommendations of the conferences, and in advocating their continuance, he believes that much can be gained in an exchange of views on design, leading to the adoption of standards which could be extended to embrace railways far distant from each other, all with similar problems.

### Effects of Oil Shortage on Railway Traffic

**T**HE first number of the 1957 series of *Transport Statistics* covers four weeks to January 27, when restrictions on oil supplies curtailed road transport rather drastically. Through this emergency British Railways were able to originate 22,895,000 tons of freight train traffic, 1,070,000 more than in 1956, an increase of 4.9 per cent. This was the largest quantity put on rail in the January period of any year since nationalisation, though it was only 122,000 tons, or 0.5 per cent, above 1954 forwardings.

The transfer from road to rail was most clearly marked in the check given to the persistent decline in merchandise carryings. The railways originated 3,594,000 tons of merchandise, an increase of 250,000 tons, or 7.5 per cent, on 1956. The corresponding ton-mileage rose by 47,842,000, or 10.1 per cent, showing that many consignments for distant places had been turned over to rail transit. These goods would be charged at high rates, but might be expensive to handle. The railways recovered only one-fourth of about 1,000,000 tons of merchandise lost between January, 1949, and January, 1956.

Over the same interval of eight years the tonnage of minerals in the January period increased by 12 per cent and rose again this year by 65,000 tons, or 1.2 per cent. This group of heavy traffics is not likely to be influenced a great deal by the rationing of oil fuel. Coal and coke accounted for an advance of 729,000 tons, or 5.5 per cent on January, 1956. The increase does little more than restore carryings to the 1954 level and only a small proportion of the additional traffic was diverted from road haulage. After a poor beginning in the first week of January, coal output improved substantially, though its distribution appears to have been altered sufficiently to shorten the average rail haul. The railways worked 427,000 fewer coal ton-miles, or 0.1 per cent, compared with 1956, and about 16 million, or 2 per cent, less than in 1954.

Altogether British Railways worked 1,767.7 million ton-miles in January. This total was 53.6 million, or 3.1 per cent, above 1956, but 11.6 million, or 0.6 per cent, behind

1954. The railway system cannot have been unduly strained by the moderate increase in freight traffic. Unfortunately, we are without statistics to show how wagon and train loads, train and wagon miles, train speed and output of net ton-miles in a train-hour have varied. Traffic receipts indicate that pressure on the railways was greater in February, and a four-weekly summary of operating results would be useful during the present emergency.

### South African Railways in 1956

**I**N his assessment made recently of the progress made with the modernisation and improvement plans of the South African Railways during 1956, Mr. D. H. C. du Plessis, General Manager, South African Railways, stresses the fact that the railways are still in the transition stage. Many of the improvements and some of the new projects have been put to practical use, but in some cases the movement of traffic is, for the moment, being adversely affected by the work in hand.

Of the major works that have been finished, one of the most important is the doubling of the Orange Free State main line as far as Bloemfontein. A double line, stretching all the way from Pretoria to Bloemfontein, is now available for the constantly increasing traffic on offer between the Southern Transvaal and the Free State and for heavy traffic that has to be routed through the Free State from its neighbouring provinces. Outstanding progress has been made in recent months with the construction of new lines to serve the coalfields. A double line between Saaibwater and Bezuidenhoutsrus in the Witbank area is already in use and is to be extended to Vandyksdrif while third roads were built in quick time between Arbor and Argent and between Delmas and Eloff and are proving of material assistance in providing the free movement of coal traffic. The limited tractive effort at the present command of the Railway Administration makes it impossible to move all the coal traffic offering by rail and special arrangements have had to be made to supplement rail transport with road haulage as a temporary measure. As soon as the heavy diesel-electric locomotives, for the supply of which tenders were invited last year, are delivered and with the addition of new class "GMAM," 4-8-2+2-8-4 Beyer-Garratt locomotives to the establishment, the conveyance of coal by rail will be stepped up to requirements.

The policy of introducing electric traction on sections where it is economically practicable remains unchanged. During the year, 54 additional track miles were electrified, 24 in the Cape, 17 in Natal, and 13 in the Transvaal. This entailed the equipping of certain marshalling and station yards and small sections of main line with electric traction. Excellent progress was made during the year with the preliminary work of surveying sections, establishing temporary construction depots, and ordering materials for the five-year electrification programme so far authorised. The projects will involve the electrification of 474 route miles and 951 track miles of railway line. The longest section of new electrification so far approved consists of 152 route miles and 311 track miles from Wattle's via Vereeniging to Kroonstad and from Midway to Vereeniging, while 92 route miles and 160 track miles will be electrified on the Transvaal coalfields between Welgedag and Witbank and from Broodsnyersplaas to Ogies.

A cautious policy in buying steam locomotives has had to be followed because of danger that the extensive electrification programme might result in a surplus of steam power. This partly explains why progress has been slow in building up engine power. However, besides the expected delivery during the current financial year of 35 new class "GMAM" steam locomotives and of 49 class "5E," Bo-Bo 2,000-h.p. English Electric Co. Ltd., electric units, orders have been placed for a further 60 "GMAM" steam locomotives and 45 "5E" electric units. This means that provision has been made for the addition of 95 steam locomotives and 105 electric units, but the intention is to order considerably more electric units to provide tractive power for the lines now in the process of being electrified.



## LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

### Transport of Mails in the U.S.A.

March 9

SIR,—As a supplement to the information given in the article, "Transport of Mails in the U.S.A.," in your issue of March 1, some of your readers may be interested in information recently received from Washington, D.C.

In the fiscal year 1955 internal non-local first class (i.e. letter) mail, moved mainly by rail, amounted to almost 140 million ton-miles, and regular domestic (internal) air mail (letters, cards, and parcel post), moved mainly by air lines, amounted to all but 53 million ton-miles. For these respective services the carriers of first class mail received approximately \$22,500,000, which works out at a rate of about 16 cents per ton-mile, whilst the carriers of domestic air mail received approximately \$45,300,000, a rate of just over 85 cents per ton-mile.

The railways received a further \$24 million in payment for space on railway post office cars used by Post Office Department employees for sorting and distributing mail en route, but the airlines provide no similar service. On the other hand, it is claimed that the Civil Aeronautics Board paid airlines, mainly those in local service, an additional \$28,348,000 in mail subsidy payments.

Yours faithfully,

C. E. R. SHERRINGTON

Byways, 20, Queens Road, Belmont, Surrey

suggested a gauge of 2 ft. 9 in.; the fourth member recommended 3 ft. 6 in., as in use in Norway. The final decision was left to Lord Mayo, Viceroy at that time. He based his calculations on the fact that to accommodate four people sitting abreast a third class passenger carriage would need an inside width of 6 ft., or 6 ft. 6 in. externally. He considered it unwise for the gauge to be less than half the body width, and therefore recommended a figure of 3 ft. 3 in.

At the same time the Government of India was discussing the introduction of a metrical system of weights and measures, because of the confusion created by the various units in use in different parts of the country, and a draft Bill was actually before the Legislative Council. In view of this, the proposed gauge for the State lines was slightly modified in 1871 and became exactly one metre. The scheme for adopting the metric system generally was later abandoned and thus for over 80 years the railway gauge has been the only metric measurement in use, all the other dimensions for these railways being in feet and inches. Moreover, the use of second-hand Indian material for early railways in British East Africa and Uganda, and Iraq, resulted in the metre gauge appearing there also.

Yours faithfully,

H. C. HUGHES

186, Cheston Avenue, Shirley, Croydon

### Design of Passenger Rolling Stock

March 5

SIR,—To judge from his letter published in your February 22 issue, Mr. W. A. Willox evidently has no experience of being 6 ft. 4 in. tall. I have, and I would like to assure him that the seats in modern British first class compartments are just as uncomfortable for a tall man as they evidently are for a short one. The principal cause of the trouble is that the backs of the seats are far too upright. Whether the seats are narrow or broad from front to back is of secondary importance. In fact, the seats on modern stock are too narrow for me. Two days ago I travelled in a first class open corridor coach in which the width between the shoulder rests was so cramped that, although I have only a 41-in. chest, I could not sit comfortably without removing my overcoat.

The most comfortable seats I have ever tried were those on some German international stock (second class) introduced not very long before the war. These had a much more sloping lower part of the squab at the back than is usual and this gave excellent support to the small of the back and set an entirely new standard in comfort on long journeys.

Yours faithfully,

L. P. BAYLY

Eastbourne House,  
Eastbourne Road, Linthorpe, Middlesbrough

### The Metric System in India

March 11

SIR,—In connection with the forthcoming adoption of the metric system for weights and measures in India, referred to on page 266 of your March 8 issue, it is interesting to recall the reasons for the introduction 86 years ago of a gauge of one metre for the subsidiary railway lines then under construction by the Indian Government.

After considerable discussion the Secretary of State for India had nominated a committee of engineers to decide on the most suitable gauge for the State lines. This committee reported in 1870 that, for reasons of economy, a narrower gauge than the 5 ft. 6 in. adopted for the trunk lines should be introduced for lines where a break of gauge would not be a serious inconvenience. Three members

### Locomotives or Multiple-Unit Sets?

March 1

SIR,—I should like to reply to the letter from Mr. E. Decreus, published in your issue of March 1. Present ideas on high-voltage a.c. traction would not permit the use of one pantograph on multiple-unit stock; certainly a 25-kV. feeder through a train is not practical.

As to riding, existing motor coaches are bad, especially those with four motors totalling some 1,000 h.p.—(500-h.p. two-motor cars are confined to the low-voltage Southern Region); but this does not mean that they, or those of 1,400 to 1,800 h.p., need be so. Motor coaches of 1,600 h.p. (Swiss Federal Railways) and 2,000 h.p. (Bernese Loetschberg-Simplon group of railways) exist in Switzerland; so Mr. Decreus can sample their riding qualities. Damage to track, too, will be less with eight properly suspended large motors than with 16 similar to those now used in Britain.

With regard to marshalling, I normally envisage only one motor coach at each end, with driving trailers inserted on those rare services where trains are divided. Three motor coaches would rarely be required, in any event, unless every car is powered; the best riding usually results with the minimum number of motor coaches.

Whilst agreeing that locomotives have qualities not appreciated in this country, I would point out that the high-power motor coach can be used as a freight locomotive, 50 tons giving ample adhesion for 1,800 h.p.; it allows, moreover, of incidental provision of passenger services by means of mixed trains, especially late at night and on branch lines.

Yours faithfully,

JOHN RODGERS

132, Worrin Road, Shenfield, Essex

**BRAUNSTON & WILLOUGHBY STATION TO CLOSE.**—The London Midland Region announces that Braunston & Willoughby station, on the former G.C.R. main line between Rugby and Brackley, is to be closed on April 1. Buses run from Rugby Central and Rugby Midland. Parcels and passenger train merchandise will be dealt with at Braunston, London Midland Region station, and alternative arrangements will be made for freight, livestock, and coal traffic.



## THE SCRAP HEAP

### Cheaper by Rail

Travel by rail costs about 1½d. a mile for ordinary second class travel. By day excursion the cost drops to about 1d. a mile. For travelling by car a public servant receives payment of between 8½d. and about 1s. a mile. This payment is calculated to cover the cost of providing and running the car. Even the new small cars must cost 4d. or 5d. a mile to run when the cost is correctly done. The common error in these arguments is only to take account of the cost of petrol—an item which is only a fraction of the true cost.—*From a letter to "The Manchester Guardian."*

### Novel Bass Inn Sign

Of the hundreds of "Railway Hotels" in the British Isles none can boast of an inn sign as unusual as that being erected outside "The Railway" at New Brighton. This gaily coloured sign, reproduced in the accompanying illustration, depicts a locomotive which is actually owned and operated by the owners of the hotel, Bass Ratcliff & Gretton Limited, of Burton-on-Trent. The locomotive is one of 21 which operate on what is believed to be the largest private railway in Britain, that of the Bass-Worthington brewery combine.

This system, running through Bass-Worthington property is 22 miles long, and often handles over 1,000 wagons a day. The locomotive shown on the sign is an 0-4-0 "A" class saddle tank engine designed by the firm's locomotive department. It was built in 1901 by the North British Locomotive Co. Ltd. It has 14 in. by 21 in. cylinders, 3 ft. 6 in. wheels and a wheelbase of 78 in. Steam pressure is 135 lb. per sq. in. and the

locomotive weighs, unloaded, 23 tons. All Bass engines are finished in a bright red paint relieved by brass domes and trimmings, and can haul loads of 30-40 wagons.

### Closure of Private Line

The private line, 1½ miles long, connecting the Whittingham Hospital to the Preston and Longridge branch at Grimsaugh, L.M. Region, has closed after 67 years of operation. It carried passengers (mostly nurses and visitors) free, justifying its existence by carrying 12,000 tons of coal per year from the junction with British Railways. Recently it is stated that operating costs have risen to £5,000 annually and it has now become cheaper to utilise road transport. The railway had its own motive power in the form of a small tank locomotive obtained from the Bolton Gasworks.

### Obstruction on Line

Interference with railway traffic by wild animals is common enough in parts of Africa and Asia, but the recent incident in the Eastern Region of the French National Railways, when a boar charged a train and brought it to a halt, must be of a kind very rare in Europe. Exactly what happened is not clear from reports. Evidently some, or all, of the boar immolated themselves, for the train crew are reported to have picked up three dead boar and continued to Sézanne, the next stop, where they gave them to the local hospital cooks. The only other case that comes to mind of molestation of a train by wild beasts in a European country, is that of the wolves which are said to have besieged the "Simplon Orient

Express" when it was snowed up in Thrace during the severe winter of 1928-29.

### Epitaph for an Engineman

Those who collect curious epitaphs may like to have this one, noted by a reader while browsing among the tombstones in the churchyard of Corwen, Merionethshire.

Owen Owen. Engine Driver.

Died 1872. Aged 29 years.

His last drive is over, death has put on the break [sic.]

His soul has been signalled its long journey to take.

When death sounds the whistle the steam of life falls,

And his mortal clay shunted 'till the last trumpet calls.—*From "The Manchester Guardian."*

### Unprepared for the Shock

A class of passenger who, though committing no technical offence, is a nuisance to his fellow passengers, is the premature stander-upper. Miles before his destination he gets ready to leave the compartment. He takes his suitcase from the rack and stands waiting with cow-like patience for the train to stop. Eventually the brakes are applied and the stander-upper falls or staggers on those passengers seated with their backs to the engine.

There might be some excuse if he were in a hurry, but in most cases he strolls at normal speed to the exit.—*From a letter to the "News Chronicle."*

### New Amps for Auld Reekie

(*Electrification of the East Coast main line may be extended to Edinburgh. See our March 15 issue*)

When, along the Lothian shore,

Puffers operate no more,

There'll be sorrow in the but and in the ben;

When the homeland of the thistle  
Hears no more the friendly whistle,  
Gone, indeed, will be the glory from the glen.

When the old familiar hooting  
Yields to some new-fangled tooting,  
Any Scot-wha'-hae will moan, however thrawn;

Loco lums no more will reek,  
When, anonymously sleek,  
Scots expresses are electrically drawn.

Hearts must ache when some old friend  
Goes at last around the bend  
And the future never can be quite the same,

For there's little to adore  
And a great deal to deplore  
When a number's substituted for a name.

If and when steam gets the boot  
From the good old East Coast route,  
There'll be calling on the shades of Burns or Scott

To inspire some master-mind,  
Ichabodically inclined,  
To compose an elegy to Jamie Watt.

A. B.



## RAILWAY HOTEL

*Locomotive of the Bass-Worthington brewery railway at Burton-on-Trent, depicted in an inn sign*

# OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

## INDIA

### North Eastern Railway to be Divided

It has been decided that the North Eastern Railway should be divided into the following seven divisions: Pandu, Alipurduar, Katihar, Muzaffarpur, Banaras, Lucknow, and Izatnagar. August, 1957, has been fixed as the target by which the process of divisionalisation should be completed.

### Dining Cars for Express Services

Mr. O. V. Alagesan, Deputy Minister for Railways, recently stated that besides one new dining car so far provided on the "Grand Trunk Express," four more are proposed to be put into service on these trains in the near future. The five new cars will replace three old cars, and enable the Southern Railway to extend the dining car service over the entire run between New Delhi and Madras Central instead of between New Delhi and Bezwada as at present.

## NEW SOUTH WALES

### Electrification Progress

Electrified services beyond Katoomba to Mount Victoria began on March 5, when "The Fish," the business train serving the Blue Mountains, was hauled for the first time from Sydney to Mount Victoria by an electric locomotive. The timetables for this train have been accelerated by 16 min. for its morning run from Mount Victoria to Sydney and by 37 min. for its return trip in the evening.

The Western Line electrification was extended from Parramatta to Blacktown

on February 26, 1955, to Penrith on October 9, 1955, to Valley Heights on November 5, 1956, to Katoomba on February 3, 1957, and to Mount Victoria as stated. It is anticipated that electrification will be completed to Lithgow next June.

## VICTORIA

### Wool Traffic

Despite floods and wet weather delaying shearing and the dispatch of wool from grazing properties to loading sidings, more wool was carried by rail during the current season than the previous year. From July 1 to November 24, 1956, 543,950 bales of wool were dispatched from Victorian, Riverina, and South Australian districts, compared with 497,281 for the corresponding period of the previous year. The wool was sent to metropolitan and Geelong stores for sale to woollen mills or for export.

## EAST AFRICA

### Inclusive Tours

E.A.R. & H. announces a number of "package tour" facilities. These tours can be arranged through travel agents or stationmasters throughout East Africa, and through certain agents in other countries. Costs are low; for instance, an 11-day round tour, Nairobi/Nimule, on the Sudan border, costs only Shs. 543/70 inclusive of all transport by railway, lake, river and road, with meals and accommodation. Other tours at present available are a holiday to the Murchison Falls, and an

unforgettable holiday aboard the ss. *Liamba* on Lake Tanganyika. All-inclusive tours to Malindi on the coast, and Mweya Lodge in the Queen Elizabeth National Park, will be available shortly.

## SOUTH AFRICA

### Higher Mineral Rates

Higher rates on S.A.R., which take effect on April 1, are expected to yield an additional £2,250,000, according to Mr. B. Schoeman, Minister of Transport. The rates for coal, copper ingots, concentrates of base and precious metal ores, manganese and crude asbestos, according to reports, will increase by 10 per cent., and chrome ore by 2½ per cent.

## UNITED STATES

### Michigan Iron Ore Facilities

The Lake Superior & Ishperring Railroad is planning to spend \$10 million on a new port for shipping iron ore at Sterling Harbour on Lake Michigan. Included in the petition to the Interstate Commerce Commission is the right to acquire a half-share in the 30-mile line of the Minneapolis, St. Paul & Sault St. Marie (Soo Line) track from Eben, on the L.S. & I., to Rapid River, Michigan, and to build 7½ miles of new line from Rapid River to Sterling Harbour, where shipping at the new dock would be by means of a belt conveyor of the latest type. The aim of the L.S. & I. is to provide a direct route from its existing dock at Marquette on Lake Superior to Lake Michigan, thereby cutting out the lengthy circuit by ships carrying ore by water throughout from Lake Superior to the steel mills in the Chicago area. If the proposal is sanctioned, the L.S. & I. will also require a considerable addition to its present stock of diesel locomotives and ore wagons to handle this traffic.

## ARGENTINA

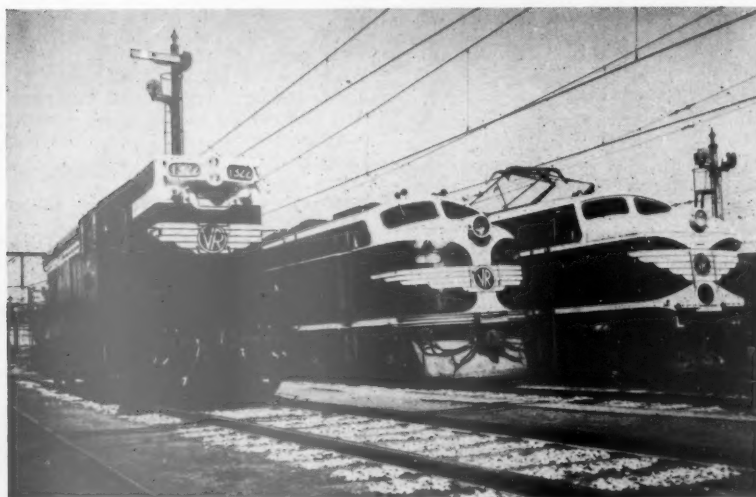
### New Underground Railway Branch

As reported in our issue of March 8, Buenos Aires Transport has called for tenders for the construction of a new line 1½ miles long, leaving the Plaza Constitución-Boedo line at San José, passing through Independencia station of the Plaza Constitución-Retiro line, and terminating in Plaza Mayo and connecting with the Plaza Mayo-Primera Junta, and Plaza Mayo-Palermo lines. The Boedo terminus will be enlarged and rebuilt, and when finished will serve as the terminal for several bus and trolleybus routes.

### Passenger Train Accident

One of the most serious accidents of recent years took place on February 25, when the "El Capillense" of the

### Victorian Railways Motive Power



(Left to right) "T" class utility diesel-electric, "B" class main-line diesel-electric, and "L" class electric locomotives

General Belgrano Railway left the rails shortly before arriving in Córdoba. The train, consisting of two new diesel-electric locomotives, baggage car and 10 coaches, had left Capilla del Monte for Córdoba (General Mitre), where most of the passengers were due to transfer to "El Turista" of the General Mitre Railway for Buenos Aires. More than 800 passengers were on the train, many of them standing. Because a curve was taken at too great a speed, the baggage car and all but one of the coaches left the rails and fell down an embankment on to their sides. 10 passengers were killed outright, and 140 injured, four of whom have since died.

## FRANCE

### High Speeds in Pantograph Tests

Ten Chapelon Pacific locomotives of class "231 E" at Fives depot have been used for propelling electric locomotives at high speeds in connection with trials of French and foreign pantographs and investigations connected with the overhead contact system for the Paris-Lille electrification. In the course of runs between Aulnoye and Valenciennes, a speed of 99.4 m.p.h. was reached and maintained near Quesnoy. The Pacific was propelling an electric locomotive equipped with the pantograph under test, and hauling

two coaches, one containing recording apparatus and the other being included in the formation for braking purposes. The load was approximately 225 tons. Three of the locomotives used on the test runs undertook the duty with no special preparation beyond the installation of a Flaman speed recorder suitable for the maxima expected, and ultrasonic tests of tyres. The experiments are being carried out for the Office des Recherches et Essais of the S.N.C.F. in view of the maximum speed of 99.4 m.p.h. envisaged for the Paris-Lille line after electrification.

## IRELAND

### Border Handicap to G.N.R.(I)

The economic disadvantages, to the Great Northern Railway Board, of Partition, were stressed recently by Mr. J. F. McCormack, General Manager of the G.N.R.(I), at a meeting of the Institute of Transport in Dublin. He was lecturing on "The Place of the Great Northern Railway in Ireland's Transport." In essence, he stated, running the G.N.R. was like running two undertakings in one and, up to a point, as one, certain elements and activities remaining undisturbed in nature and treatment from first to last, while others required theoretical bisection.

The G.N.R. operated under onerous circumstances of inconvenience and exceptional expenditure by reason of the unique position it occupied in having to contend with a political boundary spreading across its system. The division of the country, resulting in drastically altered traffic flows, automatically reduced the potential length of haul and left the railway open to fiercer competition from the road.

Mr. McCormack added that it would be rash to venture to foretell what the future of the G.N.R. would be. On one hand there were the mountainous financial losses which were being incurred annually in the working of the undertaking, and, on the other, the transport service rendered, which in the matter of quality, deserved approbation and often received it.

## U.S.S.R.

### Equality of Air and Railway Fares

Moscow Radio is reported to have announced that the placing in service in the near future of the 84-seater "Ukraine" aircraft, air fares within the U.S.S.R. will be the same as railway fares between the same points; the class of railway travel, and whether the fares to which the air fares will be equal include sleeping accommodation, is not stated.

## Publications Received

*The Railway Station. An Architectural History.* By Carroll L. V. Meeks. London: The Architectural Press, 9-13, Queen Anne's Gate, S.W.1. 10½ in. × 7½ in. × 1 in. 203 pp. Illustrated. Price 60s.—Avowedly a study of the architecture of the Western world as revealed by the passenger station—and mostly in large cities—this book will disappoint those who wish to examine the architectural problem of the station as a whole. It provides no answer to the problem facing the architect, of correlating the demands not only of the station site in relation to the architecture and street traffic of the city, but also those of the general manager of the railway, of his commercial and operating officers, and of the travelling public. The author, however, presents much information in an attractive manner. It is interesting to hear that the Central Station at Milan "is not an example of Fascist monumentality, since it was designed before Mussolini came to power." The many illustrations are well reproduced, but the index is inadequate for a work of this nature.

*Die Kartellierung im Verkehrswesen* (Cartel Tendencies in Transport). By Dr. René G. Dubois. Schweizerische Beiträge zur Verkehrswissenschaft No. 49. Published by Verlag Stämpfli, Berne. 196 pp. Price Swiss francs 18.65.—The author examines the transport industry with aim of explaining

how the free play of commercial considerations among transport operators tends, as in other industries, to level out demand and supply when demand reaches saturation point. The first part of the book is devoted to a description of cartels in general and shows how these differ from other associations such as price rings or trade associations. In the second part the author examines various types of cartel, their application to the peculiar circumstances of the transport industry, and their effect on national economies. The final section reviews briefly the development of cartels, special mention being made of shipping on the main ocean routes, the Great Lakes of North America, and the Elbe, and of the main air routes. Dr. Dubois also refers to the effect of cartels in the Swiss transport system, including Rhine shipping, and states his opinion that cartels, often wrongly accused of causing prices to rise artificially, can, if properly controlled, be a means of achieving co-ordination on a sound basis to the benefit of the public and the transport operators alike.

*Rust Prevention.*—A series of leaflets has been issued by Jenolite Limited, 13-15, Rathbone Street, London, W.1, covering the various chemical pretreatment processes in the Jenolite range, which takes the place of previous literature. Processes covered include rust remover and neutraliser for removal of rust and preparation of the metal surface, chemical sealers for the sealing of the cleaned steel surface

prior to painting, and descaling jellies for the removal of millscale from steel structures in situ, either before or after erection.

*Fractional Horse-Power Motors.*—An illustrated leaflet giving details of a selected range of fractional horse-power motors, for three-phase, single-phase, and d.c. supply has been issued by Lancashire Dynamo & Crypto Limited, St. Stephens House, Victoria Embankment, London, S.W.1. The motors range from 0.05 to 0.95 h.p. and various applications are given including Sturtevant industrial vacuum cleaners, Jones & Shipman surface grinders, Alfa-Laval centrifugal separators, and Flexitol Engineering flexible drive polishing machines.

*Hotels and Restaurants in the British Isles, 1957.*—Published by the British Travel & Holidays Association, at 5s., the guide contains detailed information on more than 4,000 hotels in Great Britain and Northern Ireland. All the features which have made previous editions of the guide so popular are retained, but certain re-arrangements of the contents make the guide easier to use. Included are lists of London and provincial restaurants, giving minimum table d'hôte charges and brief remarks about cuisine; sectional maps of Great Britain and Northern Ireland; an index to places mentioned in the guide; and maps of central London, the London hotel areas, and well-known tourist areas.



## Second Class Sleeping Cars for Malayan Railway

*Locally built stock with longitudinal arrangement of berths, and fixed steps*



*Arrangement of sleeping berths in the standard second class car, showing fixed upper berth steps*

THE metre-gauge system of the Malayan Railway suffered very severely during the four years of Japanese occupation, at the end of which it was found that more than 25 per cent of the coaching stock was either lost or destroyed, while the remainder was in an exceptionally poor condition. During the intervening years the railway has completed its rehabilitation, and is now in the course of

carrying out an intensive programme of modernisation of its equipment.

A regular service of air-conditioned first class coaches had been established for many years; but because of the condition of this stock after liberation in 1945, it was decided to carry out a programme of rebuilding at the Sentul shops, the necessary materials being ordered in this country. A further step toward re-establishing the previous

facilities, was the provision of three buffet and four *wagon-lits* type coaches, these being built by the Birmingham Railway Carriage & Wagon Co. Ltd.

### Second and Third Class Stock

The management is now giving particular attention to the position of second and third class coaching stock, and with the object of providing improved facilities, will shortly place in service a new standard design of second class sleeping car, 18 of which are being built at Sentul. The new stock will be used mainly on night trains between Kuala Lumpur and Singapore and Kuala Lumpur and Prai (Penang).

### Fixed Steps

The sleeping cars are designed to accommodate 32 sleeping passengers. Lower and upper berths are fitted, permanent steps to the upper berths being provided. Berths are arranged longitudinally, each being curtained off. Ample head room, sufficient for both upper and lower berth passengers to sit in a full upright position is provided. Berths are arranged in groups of four, each group being separated by a sliding door.

Foam rubber mattresses are fitted, these being a standard fitting for all Malayan Railway sleeping car stock. Centre corridors are arranged, and access to each sleeping car is by means of vestibules. The interior of the cars is panelled in a light grey laminated plastic. Variable speed fans and berth lights are provided, the switches being fitted adjacent to the berths.



*Second class standard type sleeping car built at Sentul shops, Malayan Railway*



# Track Loading Fundamentals—6\*

## Track design related to bridge loading

By C. W. Clarke, M.I.C.E., M.I.Mech.E., M.I.E.Aust., M.Inst.T.

SEEMING that the bridges of a railway are designed for specified axle loads and spacings at unrestricted speeds, it seems logical to suggest that the track should be designed for the same conditions. In the case of large bridges having long spans between piers it might be necessary to impose speed restrictions, but for bridges having spans up to about 60 ft., in point of fact, it is unusual to impose speed restrictions, and such bridges are usually designed to carry traffic at unrestricted speed.

In 1894 Theodore Cooper suggested his unit loadings for railway bridges, and in 1925 the British Standards Institution published their "Standard Unit Loading for Railway Bridges"—(B.S.153: Appendix 1: 1925). Fig. 20 shows the unit loadings for railway bridges in use in the United Kingdom and United States of America. All railway bridges in British or American practice are designed in accordance with one of these standard unit loadings and their adoption has facilitated bridge design greatly. The bridge engineer determines the equivalent uniformly distributed load, normally referred to as E.U.D.L.

If the B.U. loadings for bridges are accepted as the loadings for the permanent way, and it is assumed that fair quality track for standard and broad gauge railways has a value of  $X_1 = 34$  in., and for 3 ft. 6 in., metre and 3 ft. gauge railways a value of  $X_1 = 30$  in., then the Talbot and Zimmer-

mann loads can be computed and are as shown in Table 11.

TABLE 11.—BRITISH STANDARD UNIT LOADING FOR BRIDGES AND EQUIVALENT TALBOT AND ZIMMERMANN LOADS

Case 1—For 3 ft. 6 in., metre and 3 ft. gauges, 10 B.U. loading for track where  $X_1 = 30$  in.

Wheelbase	Maximum static wheel load	Talbot wheel load	Zimmermann wheel load
Engine	Tons 5.0	Tons 3.2	Tons 8.5
Bogie car, 5 ft. wheelbase	6.25	5.0	7.5
Four - wheel wagon, 10 ft. wheelbase	5.0	4.7	4.7
Maximum values	—	5.0	8.5

Case 2—For standard and broad gauges, 10 B.U. loading for track where  $X_1 = 34$  in.

Wheelbase	Maximum static wheel load	Talbot wheel load	Zimmermann wheel load
Engine	Tons 5.0	Tons 2.6	Tons 7.9
Bogie car, 5 ft. wheelbase	6.25	5.0	7.4
Four - wheel wagon, 10 ft. wheelbase	5.0	4.7	4.7
Maximum values	—	5.0	7.9

This analysis shows that if the rail section for the track is designed for a Talbot load of half the value of the B.U. loading, the rails would always be strong enough to carry the wheel loads

permitted. In order to take advantage of relief of rail stresses afforded by adjacent wheels, and the possibility of increasing the wheel loads on inner wheels of a close-spaced wheelbase to attain greater adhesion (without increasing permitted bridge loading), the allowable Zimmermann loading might be taken as equal to the British Unit loading.

### Track Load Determination

On this basis it would be possible to design track in accordance with B.U. loading, and so determine rail section and ballast depth required for given sleeper sizes and spacing to carry the vehicles at the same speeds for which the bridges are designed. Therefore, the design loads for the track would be as shown in Table 12.

TABLE 12.—WHEEL LOADS CORRESPONDING TO B.U. LOADINGS

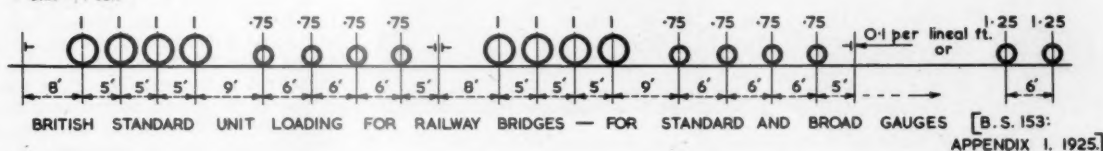
B.U. loading	Wheel loads—speed V	
	Talbot load	Zimmermann load
10	Tons 5	Tons 10
15	7.5	15
20	10	20
25	12.5	25

As a means of illustrating the problem three examples might be considered, and these are as shown overleaf in Table 13.

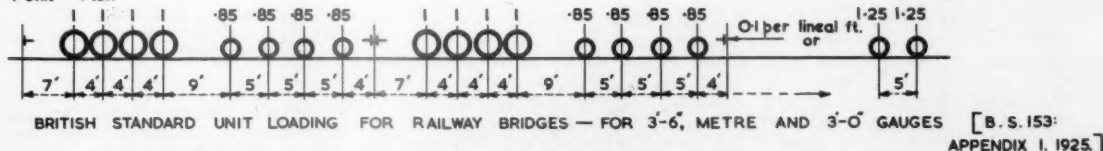
In these examples the average pressure on the roadbed is not to exceed 12 p.s.i. and effective bearing length of sleeper is 30 in. in each case.

\* Parts 1, 2, 3, 4 and 5 appeared in our issues, January 11, January 25, February 8, February 22, and March 8, respectively

1 Unit = 1 ton



1 Unit = 1 ton



1 Unit = 1 kip = 1000 lb.

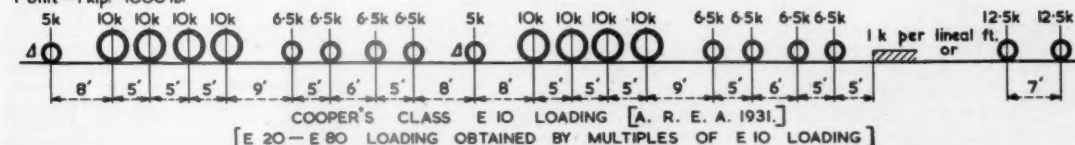


Fig. 20—Standard bridge loadings

TABLE 13.—EXAMPLES OF TRACK AND B.U. LOADINGS

Track	14 B.U.	20 B.U.	32 B.U.
Speed, m.p.h. . . . .	45	75	90
Sleeper width . . . . .	9 in.	10 in.	9 in.
Sleeper spacing . . . . .	32 in.	30 in.	21 in.
Distance $X_1$ . . . . .	30 in.	34 in.	42 in.
Talbot wheel load—			
Static (tons) . . . . .	7	10	16
At speed (tons) . . . . .	10.3	16.25	28
Zimmermann wheel load—			
Static (tons) . . . . .	14	20	32
At speed (tons) . . . . .	15.9	29.5	53

From equation 42 the section modulus of the rail can be determined and from equation 78 the ballast depth. The values computed are shown in Table 14.

It will be recognised that 14 B.U. loading generally applies to 3 ft. 6 in. gauge railways, where ballast section for 60-lb. track seldom exceeds 8 in. lift. That 20 B.U. loading applies to the main lines of British Railways, where ballast depth specified is usually

12 in. The 32 B.U. loading corresponds approximately to Cooper's E-72 loading and applies to the heavy main-lines in the United States of America where ballast depth exceeds 24 in. lift, usually being 18 in. metal ballast laid on 12 in. of finer and less expensive sub-ballast material.

TABLE 14.—VALUES COMPUTED FOR TRACK FROM B.U. LOADINGS

Bridge loading	Rail section	Ballast depth
14 B.U.	$Z = 7.3 \text{ in.}^3$ , say 60-lb. rail	8.1 in.
20 B.U.	$Z = 13 \text{ in.}^3$ , say 90-lb. rail	11.0 in.
32 B.U.	$Z = 28 \text{ in.}^3$ , say 132-lb. rail	12.5 in.

In general the Americans recognise the need for closer sleeper spacing and adequate ballast depth. This does not apply to many of their secondary lines, often having 60-lb. and 72-lb. rails laid on 6 to 8 in. of ballast, but on these lines the traffic carried is mainly drag

freight trains with speeds generally held down to 30 m.p.h. Such lines are gradually being re-graded, the roadbed compacted and additional ballast provided. The actual ballast depth on main lines of British Railways is much greater than that specified, since the ballast renewal programmes on such lines average about 15 years with frequent ballast lifts between, so that with the passing of years the ballast lift above the roadbed is actually two to three times the minimum figure specified. If roadbeds were laid with the ballast depths indicated, trouble with sinks forming or difficulty in maintaining even alignment and surface would be unlikely. Money spent in providing adequate ballast depth invariably results in better riding track and reduced maintenance costs, both for track and rolling stock, and proves more economical in the long run.

(To be continued)

## Wankie Avoiding Line

First tunnel on Rhodesia Railways



Portal of tunnel, showing cutting through sandstone under construction

WORK has recently been completed on an eight-mile avoiding line around the coal mining town of Wankie in Southern Rhodesia. The new line, which has been constructed to a ruling grade of 1 in 120 compensated, takes off from Mbarira  $2\frac{1}{2}$  miles south of Wankie and rejoins the main line near Thomson Junction  $3\frac{1}{2}$  miles north of Wankie. Whilst all through trains, both north- and southbound, will in future use the new avoiding line, the existing line through Wankie will not be removed, and goods, livestock and vehicular traffic will continue to be handled at the station previously known as Wankie, which has now been renamed Old Wankie.

The station serving the Wankie area for passenger and parcels traffic has been transferred to Mbarira, which in future will be known as Wankie Station.

The principal reasons governing the decision to construct this avoiding line were to relieve congestion at Old Wankie and eliminate the bottleneck at the south end of the traffic yard; to avoid the heavy grade southwards out of Wankie which frequently necessitated the use of banking engines on heavy coal trains; to ensure that the main railway line will not be affected in the future by underground coal mine workings; and to take advantage of the easier ruling grade resulting from the Dett-

Mbarira deviations which makes longer trains and considerably heavier loads possible over this densely operated section of the line.

### Tunnel

A feature of the new line has been the construction of the first railway tunnel on the Rhodesia Railways. Other works involved include a two-span bridge and several minor culverts. The tunnel, which was built by contract, is 278 yd. long and was driven through a hillside of shale. The approach cuttings are largely of sandstone, but the tunnel itself goes through black shale. A number of thin seams of coal were discovered during construction. Altogether nearly 17,000 cu. yd. of earth had to be removed in the approach cuttings, 12,000 cu. yd. in the tunnel and an additional 1,000 cu. yd. in the portals. More than 3,300 cu. yd. of concrete were used in the building of the tunnel. Work on the tunnel commenced simultaneously at both ends, and the two construction teams meeting in the middle were less than one quarter of an inch out on their calculations. The Wankie avoiding line was opened on January 20, 1957.

SEVENTH INTERNATIONAL MECHANICAL ENGINEERING CONGRESS.—This congress will be held at Scheveningen, on June 2-8, 1958, in succession to those held in 1948 and 1949 in Paris; in 1950 at Brussels; in 1952 at Stockholm; in 1953 at Turin; and in 1956 at Paris. A main objective of the 1958 congress will be the examination of matters currently influencing manufacturing progress both in the technical and economic spheres. The programme of the congress includes presentation and discussion of papers and visits to works. Details may be obtained from Vereniging van Metaal Industrieën, The Hague.

## Large Diesel Locomotives in France

*Two designs totalling 55 units are being introduced by S.N.C.F.*



*The first of the 35 diesel-electric locomotives still in course of delivery to the French National Railways*

**T**WO important deliveries of large diesel locomotives are now under way in France. The first comprises 35 diesel-electric Co-Co single-engine locomotives of 2,000 b.h.p. and 120 tons weight for the heavy freight-transfer traffic over the northern half of the Paris Grand Ceinture belt railway; these locomotives are classified as 060 DA, and they are required to haul 2,000-ton trains over a ruling gradient of 1 in 166 and 1,600-ton trains over a ruling gradient of 1 in 90.

Second of the two deliveries is that comprising 20 diesel-electric Co-Co locomotives of 1,800 b.h.p. and 104 tons weight; the first 15 of them are intended for general passenger and freight services over the Bordeaux-Nantes and La Rochelle-Poitiers secondary main lines, and five are for the freight transfer traffic from St. Louis through Basle to the large Swiss marshalling yard at Muttens. These locomotives are classified as 060 DB, and on the Bordeaux-Nantes line they have to haul passenger trains of weights rising occasionally to 800 tons and freight trains up to 1,100

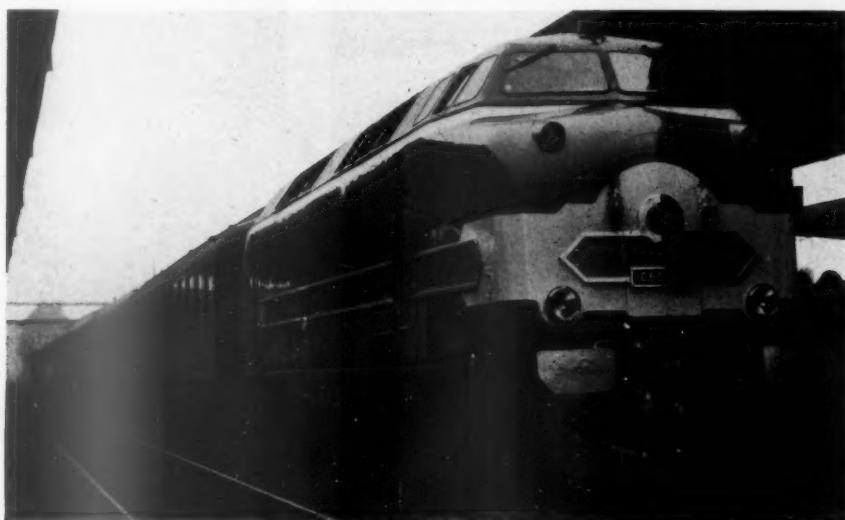
tons over ruling gradients of 1 in 100. Of the Ceinture locomotives 20 are now at work, and the remainder are to follow during 1957 and early 1958. One of the first batch ran for some weeks experimentally over certain Renfe lines in Spain, on two broad-gauge bogies made specially for the purpose. Of the 060 DB class two or three locomotives are now running.

### Heavy Transfer Locomotives

Great tractive power at low speeds and on the continuous rating, and a comparatively low top speed, were desiderata for the Ceinture locomotives; and no train-heating installation was necessary. The adhesion weight allows of a starting tractive effort of 75,000 to 80,000 lb., and the continuous rated tractive effort is 48,500 lb. at 11½ m.p.h. Top speed is 46 m.p.h. Wheel dia. is 47½ in. and traction motor gear ratio 14 to 91. Bogie wheelbase is 15 ft. 4 in., bogie pivot pitch 31 ft. 1 in., total wheelbase 47 ft. 1 in., and length over the two-cab superstructure 60 ft. 8 in. The main contractor for

these locomotives is the Ateliers et Forges de la Loire (AFL), at whose St. Chamond works the mechanical portions were made and the locomotives erected.

Power is provided by one Sulzer vertical twin-bank pressure-charged engine of type 12LDA28, set to give 2,000 b.h.p. at 710 r.p.m. and weighing about 43,000 lb. with underbed. Some of the engines were made at Winterthur, and the remainder at the St. Denis works of CCM-Sulzer. The gearing together of the two engine crankshafts to a common output shaft gives the opportunity of a step-up gear, so that the generator runs at a higher speed than the engine, and so has reduced bulk. In this case a generator speed of 1,020 r.p.m. is given at the top engine speed of 710 r.p.m. The main generator is a 1,280-kW. (one-hour) machine, with an inset 45-kW. auxiliary generator. The six 214-kW. (one-hour) nose-suspended traction motors are permanently coupled in series-parallel across the main generator, with three groups in parallel of two motors in series. All



*Alsthom 1,800-b.h.p. Co-Co diesel-electric locomotive on S.N.C.F. passenger train*



of this electrical equipment was made by the Cie. Electro-Mécanique, the French associate of Brown Boveri.

#### Line-Service Locomotives

Though double-cab machines of the same wheel arrangement as the Ceinture locomotives, the units of Class 060 DB are to quite a different conception, even though AFL, as subcontractor to the main contractor, Alsthom, built some of the bogies and other mechanical parts at St. Chamond. To begin with, these Alsthom locomotives embody two engines of high-speed lightweight type. These are of M.G.O. make, type 12VSHR, a pressure-charged and inter-cooled model similar to those installed in the 130 Alsthom locomotives of Class 2400 on the Netherlands Railways. Each engine has an output in the S.N.C.F. locomotives of 900 b.h.p. at 1,500 r.p.m., and each drives an Alsthom 555-kW

main generator supplying current to three nose-suspended traction motors. When engaged in passenger service, with a top permissible speed of 80 m.p.h., three traction motors are coupled in parallel across each main generator. When used in freight service, with a top speed of 50 m.p.h., the traction motor connection is simply changed over to give two groups of three motors in series. In the passenger grouping the starting tractive effort is 34,000 lb., and the continuous rated tractive effort is 17,400 lb. at 28 m.p.h. When in the "freight" motor grouping the starting tractive effort is 56,000 lb., and the one-hour rated tractive effort is 31,000 lb. at 15½ m.p.h. Wheel dia. is 41 in. and traction motor gear ratio 21 to 61.

The bogies are of Alsthom design with rubber pivots, with fully compensated suspension through equalising beams and helical steel springs, and

with Athermos axleboxes connected to the bogie frames by Alsthom Silentbloc link arms. Bogie wheelbase is 13 ft. 1½ in., bogie pivot pitch 36 ft. 5 in., and length over buffer beams 61 ft. Between the bogies are slung the 880-gal. fuel tanks, the 110-gal. train-heating fuel tank, and the water tanks.

In the centre of the locomotive is a Vapor train-heating boiler with a capacity of 1,700 lb. of steam an hour and surmounting a 660-gal. boiler water tank. Flanking this are the two engine-generator groups with the engine-auxiliary drive (compressor and belt-drive to the overhead radiator fan) nearest the boiler; then the engine; then the generators and the belt-driven traction motor blowers; and finally the electrical control apparatus cubicles up against the cab bulkhead. Intake air filters for the engines are located in the roof.

## Rock Island Railroad Electronic Hot Box Detector

*Experimental use of camera measuring infra-red radiation from journal*

FOR about a year the Chicago, Rock Island & Pacific Railroad has been working on development and application of an experimental device for detecting hot boxes on freight cars, in conjunction with the Federal Radio & Telephone Company. A permanent installation is now envisaged.

The basic unit consists of a camera that measures infra-red radiation from the journal. Triggered by a small lever located in a joint between two sections of rail, the camera is mounted alongside the track and takes a heat reading about

5 in. square as each journal of the freight car to be examined passes in front of the lens.

#### Heat Generated by Braking

The picture must be kept small so as not to record wheel heat generated by braking. In initial tests the camera shootings were recorded on paper tape. Two camera locations about 10 miles apart near Morris and Seneca, Illinois, were used. They indicated that 85 per cent of abnormal journal heat readings were followed by subsequent hot boxes

—sometimes as far as 150 miles away. Heat variations were measured so closely that roller bearing equipped cars could readily be picked out.

The initial permanent installation near Mineral, Illinois, 140 miles from Chicago, would measure journal radiation about 30 miles after eastbound trains left the Rock Island marshalling yard at Silvis. This would allow of sufficient travel for heat to build up in one bearing. Later additional installations would be spaced from other freight yards.



General view of cameras, showing height adjusted to that of car journals

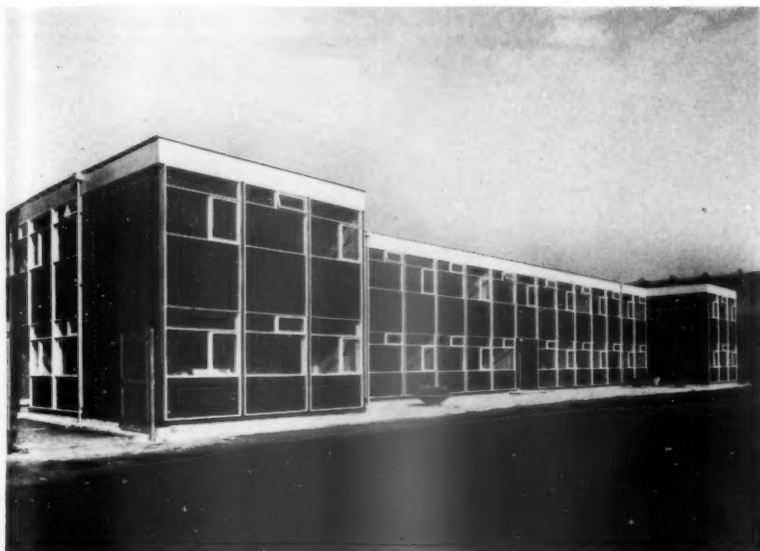


Camera in relation to track, show connection to lever in the rail joint



## New Office Building for British Transport Commission

*Speedy construction in timber using new system*



*Front, showing timber construction*

**N**EW centralised office accommodation for the staff of the Chief Electrical Engineer, British Railways Central Staff, British Transport Commission, designed by the architect to the Commission, Dr. F. F. C. Curtis, has been built in Melbury Terrace at the west side of Marylebone Station, on a site conveniently accessible from the Commission's headquarters. The new building has two stories giving a floor space of 12,700 sq. ft. The general contractors were Bovis Limited.

### Timber Construction

After site investigations, a draft scheme based on the use of the Derwent timber system of construction developed by Vic Hallam Limited, was selected. Immediately after all approvals for the scheme had been obtained, the order was given for work to begin. A fortnight later, on September 10, 1956, site clearance started, and the erection of the structure commenced on November 6, 1956. During the course of the erection, the electrical services followed closely behind, with drainage and site works proceeding concurrently. The building was weather proof and the roofing completed on December 10, 1956. The building contractors left the site on January 18, by which time the electrical installation, and clock and telephone wiring was complete and awaiting the connection of fittings. Decorations, flooring, the installation of all fittings, and the delivery of all furniture was completed ready for occupation on February 21, 1957.

The first floor covering consists of linoleum laid on paper over Barteve panels. The ground floor has the same

finish laid on a concrete screed. The corridors are paved with Muhuhu blocks, and the offices have plastic tiles. The toilets are asphalted on the first floor over boarding, and quarry-tiled on the ground floor. Apart from wall tiling in the toilets, other wall and ceiling surfaces are finished with flat oil paint. The staircase has teak treads and strings, non-slip nosings, teak hand-rails with stove enamelled balusters in white.

Heating is provided by means of thermostatically controlled electrical convector heaters, the entire system

being controlled by a time clock and over-riding low temperature thermostats as a frost precaution. The advantages of this system are speed in installation and a high recovery factor. Furniture and furnishings were selected by the Commission's Architect and the desks and tables are basically the designs of the Architect of the Eastern Region, British Railways, introduced a year ago, as standard new equipment in that Region. The timber for all this furniture is mahogany.

Colours outside are restricted to white on the framing, beads, and window frames, with dark blue on the panels. Internally all offices facing south are painted in grey green with doors in medium green. Offices facing north have walls in biscuit with doors in brown. Ceilings, architraves and skirtings everywhere are white and bright colours are introduced in circulation areas.

Besides the supply of all equipment for electrification, the office also deals with a number of other matters which require handling centrally, such as arrangements for power supplies, and co-ordination with the Ministry of Transport & Civil Aviation, with the General Post Office and with other bodies who are or may be, affected by the electrification of the railways.

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**RANSOME & MARLES NEW SCOTTISH OFFICE.**—It is announced that the Ransome & Marles Bearing Co. Ltd. have moved their area office for business in Scotland to 378-380, Argyle Street, Glasgow, C.2. The telephone number has been changed to Glasgow Central 3948.



*Main entrance hall and staircase*

## Mobile Training School for Footplate Staff

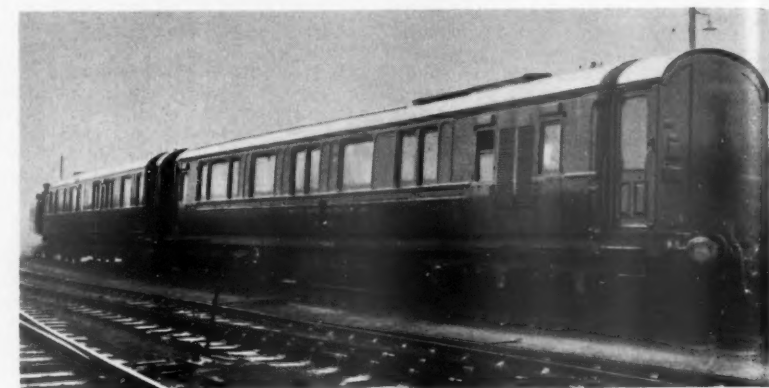
*Two-car train for visits to Scottish Region depots, equipped with sectional models*

**A** MOBILE school for the training of young entrants to British Railways as engine cleaners and firemen, as well as providing refresher courses for the more experienced locomotive men, is now making an extensive tour of the Scottish Region; recently the mobile school visited motive power depots in south-west Scotland.

### Composition of Stock

The mobile school comprises two coaches, a cinema car and a models and equipment car. The cinema car is used to project films showing the best and most economical methods of firing a locomotive, as well as locomotive repairs and maintenance work, together with training of staff from cleaning to driving. Lectures to staff are also given in this car.

The second car is equipped with various sectional and working models, which include a former L.M.S.R. class "5" locomotive boiler backplate, which enables the trainee to study the working of the vacuum brake ejector; the whole of the brake assembly can be put into operation. Steam supply is by means of a water tube boiler situated in the rear section of the cinema car.



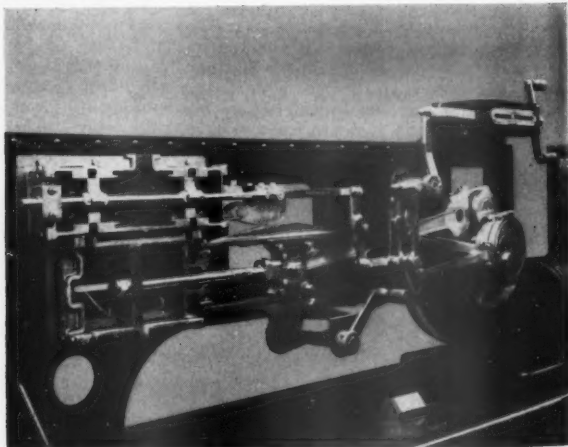
*Motive power instruction cars at Polmadie*

Working models of locomotive valve gears and a diesel fuel pump form part of the instruction equipment, and to keep in touch with the latest developments the equipment includes sectional models of various diesel engine parts, automatic train control apparatus, together with injectors, valves, motion, and so on, all of which will be of con-

siderable assistance in the practical demonstrations of the working and function of locomotive components and fittings, as well as their correct manipulation. A comprehensive tour has been arranged to include the principle depots in the Glasgow-Edinburgh area and southern districts, before proceeding north.



*Car interior, showing layout of locomotive backplate with controls, brakegear, and other components*



*Model of the Stephenson valve gear used for instruction purposes in the mobile school*

**IMPROVED LIGHTING AT GLASGOW CENTRAL STATION.**—Improved electric lighting has now been installed on the high level platforms and concourse and also the Union Street and Hope Street entrances at Glasgow Central Station. After tests it was decided that hot cathode fluorescent lighting should be used on the platforms and cold cathode on the concourse. The lighting on the platforms under the station roof is provided by G.E.C. street lighting lanterns, with modified opal Perspex bowls, each lantern housing three 5-ft.

80-W. hot cathode fluorescent new warm white tubes. The lanterns are mounted 20 ft. from platform level, a particular feature being the high vertical illumination on the side of the carriages permitting of easy reading of sleeping car lists and so on. The sections of the platforms outside the roof are illuminated by G.E.C. post top fluorescent lanterns mounted on concrete lighting columns, each lantern housing twin 5-ft. 80-W. tubes with the station name displayed on both sides of the opal Perspex bowl. In the concourse

area G.E.C. totally-enclosed Perspex visored fittings housing four 8-ft. 6-in. 120-mA cold cathode intermediate white tubes have been mounted on the underside of the cross beams and have been placed to maintain an even illumination corresponding to that of the platforms at floor level. The lighting scheme and installation was designed by Mr. M. S. Hatchell, Chief Mechanical & Electrical Engineer, Scottish Region, British Railways, and the installation work carried out by James Kilpatrick & Son Ltd., Paisley.

## RAILWAY NEWS SECTION

## PERSONAL

Mr. Karnail Singh, General Manager, Chittaranjan Locomotive Works, since February, 1954, has been appointed Member (Engineering), Railway Board, India. He took up his new post on January 25.

Mr. James Robbie Farquharson, C.B.E., B.Sc. (Eng.), Dip.R.T.C., A.M.I.C.E., M.A.R.E.A. (U.S.A.), who, as recorded in

were amalgamated to form the East African Railways & Harbours, of which he at first became Acting Deputy General Manager, and in 1949 became Chief Engineer & Deputy General. In 1952 he was appointed General Manager of the Sudan Railways.

Mr. Hector Rodriguez, who, as recorded in our December 7 issue, has been appointed Chief of the Traffic Department of the General Mitre Railway, Argentina, joined

The Council of the Institute of Transport has approved the appointment of Mr. N. B. Spencer, M.Inst.T., Chairman & Managing Director, Passenger Transport Co. Ltd., Auckland, New Zealand, as the Honorary Corresponding Member for New Zealand in succession to Mr. J. R. Miller, M.Inst.T.

Mr. Joaquin Mainer, Mr. Bruno Zavatar-elli, and Mr. Juan C. Ansaldo, all of the Argentine Ministry of Transport, are in this



*Mr. J. R. Farquharson*  
Appointed General Manager,  
E.A.R. & H.



*Mr. Hector Rodriguez*  
Appointed Chief of Traffic Department,  
General Mitre Railway

our March 15 issue, has been appointed general manager of the East African Railways & Harbours Administration, attended the Royal Technical College, Glasgow, graduated B.Sc. at Glasgow University and obtained the diploma of the Royal Technical College in 1923. From then until 1925 he was Junior Assistant Engineer in the Western District, Lowland Division, Glasgow, L.M.S.R. In 1925 he was appointed Assistant Engineer, Kenya & Uganda Railways, and later became Senior Assistant Engineer. In 1937 he was appointed Personal Assistant to the General Manager, Tanganyika Government Railways, and in 1941, Chief Engineer. From June, 1941, to August, 1942, on a part-time, and from August, 1942, to November, 1945, on a full-time basis, he was seconded for work in the operation of war-time controls in Tanganyika. In 1945 he was made General Manager of the Tanganyika Government Railways. From May 1, 1948, the undertakings of the Kenya & Uganda Railways & Harbours and the Tanganyika Railways and Port Services

the service of the Central Argentine Railway in 1909. He subsequently occupied a number of minor positions in that department becoming Assistant Chief of Train Control at Retiro in 1932, and, five years later, Chief of Train Control. In 1946 he was appointed Operating Superintendent, and became at the same time Chief of the Transport Division of the Interior Command of the Argentine Army. He was appointed Divisional Traffic Superintendent, Buenos Aires, in 1948, a position he was obliged to resign two years later for political reasons. In January, 1956, he was recalled by the Government to form part of a railway investigation committee, the capacity in which he served until appointment to his present position.

Sir Reginald Wilson, Chairman of the Eastern Area Board of the British Transport Commission, and a member of the B.T.C., has been elected President of the Institute of Transport for the year 1957-58. Sir Reginald Wilson takes up office on October 1.

country on a purchasing mission for their government. Chief interest is in spare parts for steam locomotives needed in connection with the Argentine railway rehabilitation programme. Editorial reference to this mission was made in our issue of December 28, 1956.

Mr. C. G. Harrison, General Manager, Malayan Railway, proceeded on six weeks' leave to the United Kingdom on March 21. Before arriving in London Mr. Harrison will visit Australia for consultations with the Commonwealth Engineering Co. Ltd. regarding the diesel rail cars being built by that company for the Malayan Railway. In the United Kingdom he will attend a ceremony at the Preston Works of the English Electric Co. Ltd. on March 27, when the first 1,500 h.p. diesel main-line locomotive of a batch of twenty for the Malayan Railway will be handed over. During Mr. Harrison's leave of absence from Malaya, Mr. D. D. Bartlett, Deputy General Manager, will act as General Manager.





*Mr. C. K. Thompson*

Appointed Assistant Chief Engineer,  
Rhodesia Railways



*Mr. H. M. Lattimer*

Appointed Assistant Operating Superintendent,  
Scottish Region



*Lt.-Colonel G. J. Shepherd*

Chief of Police, Scottish Area,  
B.T.C., 1951-57

Mr. C. K. Thompson, B.Sc.Eng.(London), A.C.G.I., A.M.I.C.E., Assistant Chief Engineer (New Works), Rhodesia Railways, who, as recorded in our March 8 issue, has been appointed Assistant Chief Engineer of that system, began his railway career in 1927. In that year he joined Rhodesia Railways as a Junior Assistant Engineer, and served in this capacity at Salisbury, Gwelo, and Livingstone. In 1937 he became Assistant Engineer and, during the next three years, was engaged in re-laying at Bulawayo and Somabula. In 1941 Mr. Thompson was promoted to be Senior Assistant Engineer and served in this position at Broken Hill and Umtali until 1947 when he was delegated to act as District Engineer, Bulawayo, being subsequently appointed to the grade in 1948. Between 1953 and 1956 he acted on several occasions as Assistant Chief Engineer. During November, 1955, he was appointed to the temporary position of Assistant Chief

Engineer (Construction), the designation of this post being altered in 1956 to that of Assistant Chief Engineer (New Works).

Mr. H. M. Lattimer, Assistant (Modernisation) to Chief Operating Superintendent, Scottish Region, British Railways, who, as recorded in our March 8 issue, has been appointed Assistant Operating Superintendent of that Region as from March 1 this year, was educated at Queen Elizabeth's School, Barnet, Sedburgh School, and Corpus Christi College, Cambridge, to which he was awarded an Open Scholarship in History. On leaving the University in 1928 he obtained a traffic apprenticeship on the former L.N.E.R. and after a period of training, served successively as Assistant Yardmaster, Chief Controller, Trains Assistant, and Head of Traffic Section, Divisional General Manager's Office, York. During the recent war he served in France,

Egypt, Libya, Crete, and India, reaching the rank of Lieutenant-colonel. He was twice mentioned in despatches, and, on demobilisation, was serving on the S.H.A.E.F. Military Mission to the Netherlands. On resuming railway service he became, successively, Assistant District Superintendent, Newcastle, and District Superintendent, Sunderland and York. During his term at York he was associated with the opening of the new signalling installation. In 1955 he was appointed to the position which he now vacates to take up his new appointment.

Lt.-Colonel G. J. Shepherd, O.B.E., Chief of Police, Scottish Area, British Transport Commission, who, as recorded in our March 8 issue, retired on February 23, began his railway career with the former Great Northern in 1911 and spent his early years in the Commercial and Operating



*Mr. W. P. Keith*

Principal Assistant to General Manager, B.T.C.,  
Hotels & Catering Services, 1955-57



*The late Mr. Leslie Ward*

Manager of the Manchester Office of  
Tothill Press Limited, 1940-57



*The late Mr. R. H. Whitelegg*

Partner, Messrs. Whitelegg & Rogers,  
1930-41



Departments. After service in the army through the 1914-18 war, during which he attained the rank of Captain, he returned to the Passenger Manager's Department, where he served until recalled to military service in 1939. He was awarded the M.B.E. for services in Persia and Iraq and the O.B.E. for services in North-West Europe, and retired with the rank of Lt.-Colonel. In April, 1946, he became Assistant Chief of Police (Southern Area), L.N.E.R., and in 1949 Chief of Police Eastern Area, British Transport Commission. He was appointed Chief of Police, Scottish Area, Glasgow, the position from which he has now retired, in 1951. To mark the occasion, Mr. James Ness, General Manager of the Scottish Region of British Railways, presented him with parting gifts on behalf of the Departmental Officers.

Mr. William P. Keith, M.V.O., who, as recorded in our March 1 issue, has retired from the position of Principal Assistant to the General Manager, British Transport Hotels & Catering Services, was born in Edinburgh in 1896 and educated at George Heriot's. He joined the Savoy Hotel, London, in 1913, and was with that company for nineteen years excepting the 1914-18 war period, when he served with the 1st Battalion, London Scottish. He subsequently became Assistant Manager of the Savoy. In 1932 he took over the management of the Royal British Hotel, Edinburgh. The following year he joined the L.M.S.R. Hotel Services, managing first the Midland Hotel, Derby, and, later, the Euston Hotel. In 1935 he was appointed Assistant Hotels Controller for the Southern Area, and, in 1937, he became Assistant to the Hotels Controller for Inspection, etc. In 1938 he was made General Superintendent of Restaurant Car Services; in 1945, Assistant to the Chief Hotels Superintendent; in July, 1947, he joined the Great Western Railway as Assistant to Hotels & Catering Manager, and, in 1949, was appointed Restaurant Car Superintendent to the Hotels Executive, British Transport Commission. Appointment as Assistant to the General Manager of that organisation followed in 1953. He became Principal Assistant to the General Manager, British Transport Hotels & Catering Services, in October, 1955.

We regret to announce the death on March 13, at the age of 63, of Mr. Leslie Ward, Manager of the Manchester office of Tothill Press Limited, the company which owns and publishes this journal. Mr. Ward had been associated with the company for 28 years. In his early years he was an actor, but, seeking greater stability, he joined the company in 1929 as an advertisement representative. He made an intensive study of the industries represented by the journals for which he was to work, and in June, 1940, he was placed in control of the Manchester office. He confined himself chiefly to the advertising side of the business and his work brought him into touch with some of the most prominent manufacturing concerns in the country. In the course of his career with Tothill Press there was a revolution in advertising, but in his early days there were considerable obstacles to overcome in persuading old-established firms with firmly-rooted traditions to publicise themselves and their products. Mr. Ward had a deep integrity that stood him in good stead and he lived to see the business in Manchester, where at the time of his death he and his staff were responsible for the representation of twenty publications in one of the most important industrial areas of the country, grow out of all proportion to its early beginnings. He was held in high

regard and respect by all with whom he came in contact.

We regret that the illustrated biography of the late Mr. R. H. Whitelegg, which was published in our last week's issue, was accompanied by a photograph of the late Mr. S. H. Whitelegg, the deceased's brother. The date of birth was given as 1872, whereas it should have been 1871. We also stated that Mr. Whitelegg "introduced a number of 4-4-2 tank locomotives." These were built to a design in 1880 when Mr. Whitelegg's father was Locomotive Superintendent of the London, Tilbury & Southend Railway.

Mr. R. Redpath, Stationmaster, Bolton (Trinity Street), North Eastern Region, British Railways, has been appointed Stationmaster, Hull Paragon.

Mr. C. T. Rogers, Publicity Assistant to the Public Relations & Publicity Officer, Western Region, British Railways, has been appointed Assistant Public Relations & Publicity Officer of that region.

Mr. C. E. Shaw, District Commercial Manager, Bristol, Western Region, British Railways, since March, 1954, has retired after 44 years of service with the former Great Western Railway and Western Region of British Railways.

Mr. A. Jessop, who returned last year from secondment as Transport Adviser to the Government of Mauritius, has been appointed Chief Assistant (Sales) to the Chief Commercial Manager, London Midland Region, British Railways.

Mr. Frank Grundy, Chief Commercial Manager, North Eastern Region, British Railways, has been appointed Chief Traffic Manager, North Eastern Region, as from April 1. He will supervise and co-ordinate the traffic functions of the Commercial, Operating and Motive Power Departments.

The following have been elected Associate Members of the Institution of Civil Engineers:—

Mr. R. J. Collins, B.Sc. (Eng.) London, A.C.G.I., Senior Engineering Assistant, District Engineer's Office, Bristol, Western Region, British Railways.

Mr. T. D. Swindells, Engineering Assistant "C" District, Engineer's Office, Shrewsbury, Western Region, British Railways.

Mr. E. A. Labrum, A.M.I.C.E., has been appointed Assistant District Engineer, Peterborough, Eastern Region, British Railways. Mr. Labrum began his railway career on the former L.M.S. as a draughtsman in the District Engineer's office at Northampton in 1938. During the war he was commissioned in the Indian Engineers and served in India and Assam. After the war he returned to Northampton and later moved to Stratford (Eastern Region). He is a Major in the 19th Railway Group, and was awarded the E.R.D. in 1955.

On March 11, the Société Nationale des Chemins de Fer Français gave a luncheon to Mr. R. Hacker to mark his retirement from the position of Chief Officer (Continental), British Railways Central Staff, B.T.C., and as a token of appreciation for his 47 years of co-operation with the French National Railways. A presentation was made to Mr. Hacker by Mr. Charles Boyaux for Mr. Louis Armand who was unable to attend as expected. The following S.N.C.F. officers were present at the luncheon:—Mr. A. Porchez and Mr. P. Dargeou, Assistant General Managers; Mr. —.

Goursat, General Manager of the Northern Region and of the Marine Department; Mr. F. Hebert, General Manager, Western Region; Mr. —, Sauvajol, General Manager, Mediterranean Region; Mr. —, Marois, General Manager, Commercial Department; Mr. —, Souldard, General Manager, Operating Department, and Mr. C. M. Hannover, General Agent in London for the company. Mr. H. C. Talbot, General Agent of British Railways in Paris, was also present.

Mr. J. H. Giffin, South-West Divisional Superintendent, London Transport Executive, has been appointed Superintendent (Running), Central London area. This is a new position on the headquarters staff of the Operating Manager of London Transport's central omnibus fleet.

#### BRUSSELS WORLD EXHIBITION 1958

The composition of the Advisory Committee set up to report on progress in connection with the Universal & International Exhibition, Brussels, 1958, referred to editorially in last week's issue, is as follows:—

#### Chairman

Mr. Ian Harvey, Parliamentary Under-Secretary for the Foreign Office.

#### Members

Mr. Colin Dence, Managing Director, Brand & Co. Ltd. and President of the Food Manufacturing Federation.

Mr. Leslie Gamage, Vice-Chairman & Managing Director of the General Electric Co. Ltd.

Mr. S. C. Garland, Chairman & Managing Director of Streamline Filters Limited and Vice-President of the National Union of Manufacturers.

Sir Ernest Goodale, Chairman & Managing Director of Warners & Sons Limited and Chairman of the British Industries Fair.

Sir Guy Locock, Vice-President of the Federation of British Industries.

Sir Charles Renold, Chairman of Renold's Chains Limited and Director of the British Institute of Management Administrative Staff College.

Sir Philip Warter, Chairman of the Southern Area Board of the British Transport Commission and of Associated British Cinemas Limited.

Mr. Walter Worboys, Director of Imperial Chemical Industries and Chairman of the Council of Industrial Design.

Mr. W. B. Beard, Secretary of the Pattern Makers Association and Chairman of the T.U.C.

Mr. Gervas Huxley, Vice-Chairman of the Institute of Tea Market Expansion Board.

Sir Bronson Albery, Chairman of the Drama Advisory Committee of the British Council.

Mr. C. H. Aslin, President of the Royal British Institute of Architects.

Sir Philip Hendy, Director of the National Gallery.

Sir Malcolm Sargent, Chief Director of the B.B.C. Symphony Orchestra.

Sir Lawrence Bragg, Director of the Royal Institution.

Sir John Cockcroft, Director of the Atomic Energy Research Establishment.

Sir Charles Dodds, Director of the Courtauld Institute of Bio-Chemistry at the Middlesex Hospital.

Mr. Alan Pryce-Jones, Editor of the *Times Literary Supplement*.

Mr. Gordon Newton, Editor of *The Financial Times*.

Sir William Scott, Representative of Ireland.

Sir Robert MacLean, Representative of Scotland.

Sir Percy Thomas, Representative of Wales.

## NEW EQUIPMENT AND PROCESSES

### Portable Rail Saw

A PORTABLE circular saw which has been specially developed for sawing rails and girders, will be known as the Baier saw. It can be easily carried and used in limited spaces.

The complete machine comprises two major components—the drive unit, which consists of a petrol, electric or compressed-air motor, with the saw blade, and a vice unit in which the rail or girder is clamped. The vice incorporates a shaft (on which the drive unit is mounted) fitted with a braking device to prevent the saw blade falling into the material being cut, the feed being completely automatic. For cutting permanent-way rails a second vice is available, which, when connected to the first mentioned vice, holds the rail firmly and prevents the saw blade from being pinched during the cutting operation; these vices require lateral clearance of only 6½ in.

The standard 60-cc. petrol engine has a power output of ¼ h.p., power capacities of alternative electric and compressed air motors being ¼ and ½ h.p. respectively. The drive to the saw blade is effected through worm and bevel gearing which is immersed in an oil bath. It is stated that a rail having overall dimensions of 5½ in. by 5 in. can be cut in 4½ min. The maximum capacity of rail for the machine is 5½ in. high by 6 in. wide.

The direction of rotation of the blade is such that the under and softer part of a rail is cut before the hardened surface and the construction of the complete machine ensures a perfectly square cut. The weight of the petrol engine powered saw and drive unit is 112 lb., while the compressed air version weighs 88 lb. and the electric version 120 lb.

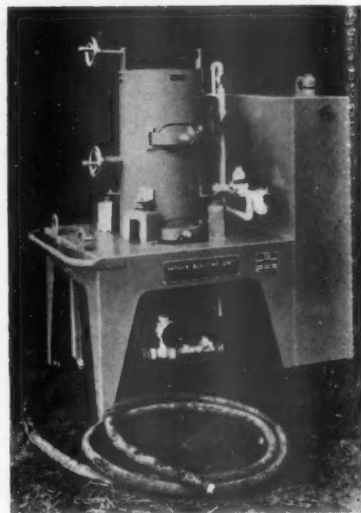
The price of the saw complete with power unit, but without vice and saw blades for the petrol and electric units, is £343 4s., and for the air version, £369 12s. 3d. Delivery at present is roughly 12 weeks. The distributor in the U.K. is Langham Tools Limited, 19, Margaret Street, London, W.1.

### Abrasive Water Blasting Process

A BLASTING process, designed to reduce costs over previous methods of descaling by chipping, brushing, or sanding, and suction sand blasting, is incorporated in the Vaguablast A.D.S.—1 unit. The medium used in this blasting process is a mixture of water and suitable abrasive and the blasting cycle is continuous. Applications include cleaning steel wagons to remove rust and paint and provide a key for a further paint application, bridges, the cleaning of internal surfaces of tanks, and the fettling of castings. The varying contour of the surface to be treated does not present any difficulty.

The Vaguablast unit allows the use of a rust inhibitor in circulation as an integral part of the blast cleaning process. The unit is portable, light and compact and requires very little maintenance.

The equipment comprises a cylinder mounted on four supports. The cylinder is divided into three compartments. Into the upper compartment is fed the cleaning media, the middle compartment contains cleaning media and water and is pressurised with compressed air, and the lower compartment is pressurised and fitted with a patented Autoflow Injector Mixer, to which the delivery hose is connected. A ½-in. bore nozzle with carbide insert is fitted to



the end of a 30-ft. delivery hose. Rubber-lined cone control valves open and close the apertures in the compartment during blasting operations and are controlled by hand-wheels. Valves situated at the side of the unit control the water, and compressed air supplies. Suitable lifting hooks are fitted to enable it to be slung against the side of the surface to be treated.

A compressed air supply of 100 p.s.i. at 240 c.f.m. is required, and cleaning media consumption is approximately 1,000 lb. per hr., but facilities are being developed for reclaiming some of the abrasive, in order that it may be returned to the unit for re-circulation. Under severe conditions, it will remove corrosion at the rate of 2.5 sq. ft. per min., and under less severe conditions at 6 sq. ft. per min.

Delivery can be made in six to eight weeks. The price will be quoted on application to the manufacturer, Abrasive Developments Limited, High Street, Henley-in-Arden, Nr. Birmingham.

### Floor Cleaning Machines

THE Mechoclean Floor Scrubbing and Polishing Machine can, with a simple change of brushes, be used as a wet scrubber, a dry scrubber, or a polisher. When fitted with wire brushes, the Mechoclean scrubbing machine can also be used as a dry scrubber for removal of compacted dirt and grease from platform, depot, and workshop floors.

For wet scrubbing operations the machine is supplied complete with a 6 gal. capacity tank for water and detergent which feeds water automatically in front of the contra-rotating brushes. Attention has been paid to the brush speed to ensure speedy cleaning, and the whole machine has been designed for easy handling. The machine is of strong construction, powered by a 1 h.p. industrial motor suitable for single phase 50 cycle 230-V. supply, and scrubs a continuous path 19 in. wide. The chassis is an aluminium casting and the switch and motor covers are of resin-





bonded laminated fibreglass. The manufacturer also markets the Mechocleen Floor Dryer, to be used in conjunction with the scrubber to dry the floor after wet scrubbing, removing not only the water but also all the dirt and grease loosened by the scrubbing action. It is powered by a high-speed  $\frac{1}{2}$  h.p. 230-V. a.c./d.c. suction unit and has a 9 gal. capacity dirty water tank which makes frequent emptying unnecessary. This machine is illustrated above. Battery versions of both machines are available for use where flying leads are not desired.

The price of the Mechocleen Floor Scrubbing Machine, mains powered, complete with one set of brushes, is £99 10s. and that of the Mechocleen Floor Dryer, mains powered, £62 10s. Delivery dates on the machine will be quoted on application to the manufacturer, Diamond Motors (Wolverhampton) Limited, Upper Villiers Street, Wolverhampton.

### Wire Rope Parting Machine

THE Metrovick Type HRP25 wire rope parting machine has been improved in design and reduced in price. Of use in railway works and depots in the manufacture of wire slings for re-railing, lifting, and other applications, the latest version has a two-jaw chuck substituted for the original three-jaw type. The illustration shows a close up of the new type two-jaw chucks, which simplify the operation of the machine as only one jaw on each chuck has to be pre-set when the size of the rope is changed, and it also tends to make centralising of the wire easier. Other improvements include reducing the height of the machine slightly to facilitate loading.

The Metrovick wire rope parting machine will part and seal, in one operation, wire ropes up to  $1\frac{1}{2}$  in. dia. without preliminary binding, leaving the ends neatly finished, slightly tapered and free of loose strands. The same machine can be used to seal individual wires of each strand, while leaving the strands themselves separate so that the rope can be spliced.

A smaller machine of 10 kVA. rating for wires from  $\frac{3}{16}$  to  $\frac{1}{2}$  in. dia. is now being developed and is expected to be in production shortly.

The price of the HRP25 machine is £650.

Delivery will be quoted on application to the manufacturer, the Metropolitan-Vickers Electrical Co. Ltd., Trafford Park, Manchester, 17.

### Valve Lapping Machine

AN automatic lapping machine has been standardised for use with the manufacturer's full-bore parallel-slide valves up to 4 in. bore, used by some railways on stationary steam boiler installations. It enables valve seats to be lapped without taking the valve out of the pipe line; similarly, lid studs in the valve body need not be removed during the lapping operation.

The machine, which weighs 8 $\frac{1}{2}$  lb., comprises a pneumatically driven motor operating at approximately 2,500 r.p.m., reducing to a suitable speed at right angles to the main shaft, where a driving bit engages with a corresponding slot in a lapping plate. A range of plates is available to suit various sizes of valve. The machine operates at 80 to 100 p.s.i. pressure, the supply of air being controlled by a trigger in the hand grip.

An automatic push-grip coupling is supplied with the machine, one part being attached to the handle, the other for fixing to the flexible pipe. Breaking the union automatically cuts off the air supply.

Price and delivery are obtainable on application to the manufacturer, Hopkinsons Limited, P.O. Box B.27, Huddersfield.

### Hydraulic Power Pack

THE hydraulic power pack, featured, is fully self-contained, easily transportable and has a wide range of uses, as it provides a source of hydraulic power to actuate such items as the hydraulic mechanisms used for rail bending and so on. Stated to be fully weatherproof and sandproof it is equally suitable for indoor or outdoor operation, and occupies only 25 per cent of the floor area required by an orthodox unit of the same output. Two basic models are available, the first powered by a 7.5-b.h.p. motor running at 1,500 r.p.m. and the second using a

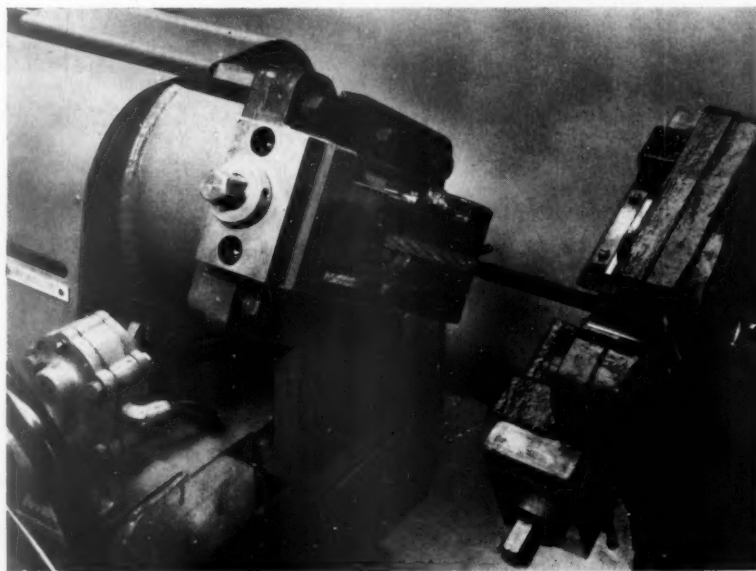


10-b.h.p. motor running at 2,920 r.p.m. The 7.5 b.h.p. version is offered with a choice of pumps including an industrial gear pump with an output of 4.5 g.p.m. at 2,000 p.s.i., a steel bodied Vardel pump whose output is 2 $\frac{1}{2}$  g.p.m. at 4,000 p.s.i., or an S.W.C. 6 x 3 pump capable of 0.6 g.p.m. at 10,000 p.s.i. A Vardel pump is fitted to the 10-b.h.p. model, delivering 4.5 g.p.m. at 4,000 p.s.i.

All types have a fluid capacity of 15 gal., the recommended fluid being S.A.E. 10. Self cooling by radiation is assisted by forced air fan cooling.

For continuous rating or for use in tropical conditions the unit may be immersed in water up to the level of the breather. The finned casing is an aluminium casting. It stands 3 ft. 6 in. high and has a base diameter of 1 ft. 10 in. All-up dry weight of the power pack is 325 lb.

Price and delivery details are available from the manufacturer, Dowty Equipment Limited, Cheltenham, Glos.





## English Electric Co. Ltd.

*Greatest confidence in the future*

Sir George Nelson, Bt. (Chairman), presiding at the 38th annual general meeting held on March 14 in London, said that the turnover had increased by £10 million; there was an increase in profits of £164,594, making a total of £6,735,195 before tax, and orders in hand at the end of the year for companies of the group in Great Britain were £180 million, and there was adequate productive capacity to fulfil them on due delivery date. He expressed the greatest confidence in the future.

He welcomed the Government's policy of reducing defence expenditure which had added so much to taxation, thereby imposing an extremely heavy burden on industry.

They were deeply interested in the Prime Minister's statement relating to the integration of European trade, for any arrangements which could be made to stimulate the growing market in Europe would benefit manufacturers in this country.

He was particularly glad that H.M. Government had insisted on excluding from the arrangements basic agricultural products and on remaining free in the negotiation of tariff arrangements with the countries outside the Free Trade Area, which would make possible the maintenance of the Commonwealth Preference system.

Certain sections of the industry had been under investigation by the Monopolies Commission and although their report gave no evidence of exploitation or excessive prices, it said that various agreements might operate against public interest. Sir George recalled the chaotic conditions prevailing before such agreements existed and was concerned lest changes from a proved system might endanger stability of employment.

In the course of his review of the group's widespread activities, the Chairman, referring to traction, said:—"With our long history in railway electrification and with our great resources for the manufacture of locomotives and railway diesel and electric equipment, you will no doubt wish to hear what progress we are making in those fields. During the year our output of traction equipment has been increased and we have shipped diesel-electric shunter, diesel-electric train equipments, and electric multiple-unit train equipments to the British Railways, diesel-electric locomotives to Rhodesia, Jamaica, New Zealand, Argentina, and the Netherlands, and electrical traction equipment to Australia and India, and we take an optimistic view of the possibility of this business in the future both at home and overseas.

I would remind you that the manufacturing resources of the Siemens Company and Dick, Kerr & Co. Ltd., which were embodied in the English Electric Company when it was formed, have now been increased by our purchase in 1955 of the Vulcan Foundry Limited and Robert Stephenson & Hawthorns Limited, who were, of course, the originators of the steam railways of the world.

Through Dick Kerr's and Siemens, the early pioneering work on locomotives was carried out—for the City and South London Railway in 1890 and the Liverpool Overhead Railway in 1896—which, of course, ran for 41 and 36 years respectively, and which were then replaced by the then modern equipment of the English Electric Company. In 1908 we built the first a.c. experiment in this country

on the line from Lancaster to Heysham and Morecambe. This was converted in 1952 to run off the British grid system, the current from which was converted to direct current in rectifiers on the rolling stock to supply to normal d.c. motors mounted on the axles. This was the first a.c./d.c. equipment operating in the country.

We were also the first to design and build 3,600-V. d.c. equipments for the railway operations in 1912 and the 1,500-V.

d.c. locomotives in 1916.

We have received substantial orders from British Railways which we greatly appreciate, but our capacity is by no means fully occupied and we are in a position to undertake further substantial orders should we be called upon to do so. Business for the British Railways is immensely appreciated because it forms the economic basis of our ability to compete in overseas business, thereby contributing to our country's balance of payments problem."

The report was adopted and a final dividend of 10 per cent (making 14 per cent for the year) was declared on the ordinary stock.

## The Vulcan Foundry Limited

*Sir George H. Nelson's review of activities :  
re-equipment and modernisation continued*

The ninety-fourth annual general meeting of The Vulcan Foundry Limited was held on March 14 in London. The following is an extract from the statement by the Chairman, Sir George H. Nelson, Bt., F.C.G.I., M.I.Mech.E., M.I.E.E.:—

The work of re-equipment and modernisation of the company's workshops, largely initiated during 1955, was continued and consolidated in the past year. Expanded capacity has been created for the production of diesel and electric locomotives and this has been closely integrated within the English Electric Group as a whole. The contraction of steam orders has of course reduced the earning power of the Works during the year, as seen in the report and accounts. The earnings, however, during 1956 were fully in line with the estimates which were framed when the development programme was planned. Taking into consideration the healthy prospects of further orders from overseas, and our hopes of an increased and steady demand for locomotives for British Railways, your directors are confident that our substantial programme of development will show steadily improving returns in future years.

### Accounts

The group trading profits, after charging £62,689 for depreciation, amount to £139,469. The provision for taxation on the profits of the year amounts to £64,662, and £30,000 has been transferred to capital reserve in respect of taxation relief on the excess of capital allowances over depreciation; the greater part of this relief is in respect of investment allowances. The net profits amount to £44,807 compared with £302,290 for the previous year.

The profits available for appropriation amount to £43,846 after deducting £961 retained by Robert Stephenson & Hawthorns Limited. After adding the balance brought forward from last year, £100,100, and providing £2,875 for the dividend on the preference stock, there is an available balance of £141,071. The directors recommend the payment of a dividend of 10 per cent on the ordinary stock, absorbing £48,593, leaving a balance of £92,478 to be carried forward. The reduction in the balance of profits carried forward, £7,622, must be viewed in conjunction with the transfer of £30,000 to capital reserve, giving a net addition to reserves during the year of £22,378.

The re-organisation has brought an increase in the group's fixed assets of £266,295 after full provision for depreciation. This increase, together with capital

expenditure commitments estimated at £250,000 at the date of the balance sheet, reflects the progress in re-equipment which has been made.

### Production

During the year, the company's building programme for locomotive mechanical parts included locomotives for the Netherlands, New Zealand, the Argentine and South Africa, while production is well advanced at Newton-le-Willows on parts for the diesel-electric locomotive "pilot" orders for British Railways. In addition, the new facilities for production of diesel engines have made a valuable contribution to the English Electric Group's output in this field. Our activities in the steam locomotive field have not entirely ceased but have been concerned mainly with the manufacture of boilers and spare parts, and no complete steam locomotives were built during the year. This was not the result of any reluctance on our part to remain in the steam locomotive market, but of the continued impact of very severe foreign competition in the few remaining main line steam locomotive markets. Some capacity for steam locomotive manufacture is still available within the Vulcan Group.

### Future Prospects

The Vulcan Foundry's future inevitably lies in integrating its production within the English Electric Group of mechanical parts for diesel-electric and electric locomotives, the completion for delivery of such locomotives, and their final testing. In recent months several substantial orders have been received by the group from overseas railways, and the mechanical parts for these locomotives will be produced, and their erection carried out at Newton-le-Willows or at the Darlington Works of our subsidiary, Robert Stephenson & Hawthorns Limited.

### British Railways

For many years the locomotive industry in this country has suffered the handicap of having no steady home market for its products. With the initiation of the British Railways modernisation programme, this handicap has been to some extent eased, and we hope it may be completely eliminated when the railways place orders in implementation of the programme's ultimate requirements. I would like to emphasise that, within the resources of the English Electric Group, ample capacity is available to cope with large-scale orders from British Railways, in addition to those from the many overseas railways with which we have built up such

a strong connection over a long period of years.

#### Robert Stephenson & Hawthorns Limited

Turning to Robert Stephenson & Hawthorns Limited, earnings have been low in a period of transition between different types of production, and a programme of re-equipment and modernisation has been put in hand to increase the capacity of the Darlington Works for locomotive mechanical parts.

At the Newcastle-upon-Tyne Works—where the *Rocket* was built in the earliest pioneer days of railways—the first models of the Clayton steam generator are being manufactured under licence from the U.S.A. Business continues in the traditional steam shunting locomotive for industrial purposes, in the diesel-mechanical shunters built in conjunction with The Drewry Car Co. Ltd., and in the Spencer-Hopwood boiler. A new austerity diesel-mechanical locomotive, called the "Husky," has been developed to meet the demand for a simple and robust shunter at a low price, and it is hoped that this addition to the Group's already wide range of locomotives will quickly establish itself in the industrial market.

#### The Directorate and Employees

I have to report that, owing to the pressure of his other commitments, Sir George Binney, D.S.O., tendered his resignation from the Board, which was accepted with regret, in February of last year. I would like to record the thanks of his colleagues and of the stockholders for the valuable service he rendered to the company, particularly in connection with export matters, during his four years as a Director.

I know, too, that you would not wish me to conclude this statement without a reference to the company's management, staff, and workpeople, who have earned our gratitude by their hard work and the determination and efficiency with which they have carried out their tasks and overcome their difficulties during the past year.

The report and accounts were adopted.

#### Mansion House Association Annual Luncheon

The annual luncheon of the Mansion House Association on Transport was held at the Trocadero Restaurant, London, on March 15, with Councillor M. F. Barnard, President of the Association, in the chair.

Councillor Barnard, after the Loyal Toast, proposed that of "Her Majesty's Ministers," and welcomed the presence of Mr. G. R. H. Nugent, Joint Parliamentary Secretary, Ministry of Transport & Civil Aviation.

Mr. Nugent, replying, said that he was optimistic as to the future of British Railways, more particularly as to their paying their way, reducing their costs, and improving their service, especially with freight traffic. Much, he added, would depend on the railwaymen, who were being given an opportunity in the form of much improved equipment after a generation or more of standstill. The improvement, however, would take time to effect. Meanwhile, petrol rationing was an opportunity of which the B.T.C. must take advantage in securing traffic for the railways.

As regards roads, he went on, the Government was spending large sums on

betterment, apart from what was being done by local authorities. With regard to London traffic, motorways into the city were no solution of the traffic problem, because they involved too much demolition of property and were otherwise objectionable to non-users of the motorways. The Government hoped that control of parking with the help of meters and other aids would go far to solve the traffic problem.

Mr. E. J. Leaver, member of Council of the Association, proposed the health of the guests.

Viscount Simon, President of the Chamber of Shipping, of the United Kingdom, who replied, stressed the importance of the rôle of coastal shipping.

Others present included:

Messrs. E. W. Arkle; C. K. Bird; David Blee; A. L. Castleman; L. W. Cox; F. W. Crews; G. Wynne Davies; G. Dow; H. R. Caulfield Giles; A. A. Harrison; S. G. Hearn; T. H. Hollingsworth; C. P. Hopkins; Hubert Hull;

Sir Gilmour Jenkins; Messrs. B. X. Jessop; D. R. Lamb; A. J. Malacrida; W. H. F. Mepsted; A. C. B. Pickford; J. R. Pike; S. E. Raymond; Major-General G. N. Russell; Messrs. C. J. H. Selfe; H. H. Starr; Lord Waverley.

#### Institute of Transport Annual Dinner

The annual dinner of the Institute of Transport was held at the Dorchester Hotel, London, on March 15. Mr. Francis H. Cave, President of the Institute, was in the chair, and nearly 600 Members and ladies and guests were present.

Mr. Cave, after proposing the Loyal Toast, welcomed the guests. He went on to announce that good progress was being made in negotiations for foundation, under the auspices of the Institute, of a university readership and fellowships in transport subjects. He also announced that Sir Reginald Wilson, Member of the British Transport Commission and Chairman of the Eastern Area Board, had been elected President of the Institute for 1957-58.

Mr. John MacLay, proposing the toast of the Institute of Transport, emphasised the usefulness of the work performed by the Institute, and, more particularly, of its educational activities.

Others present included:—

The High Commissioners for New Zealand and Ceylon; Messrs. E. W. Arkle; D. S. M. Barrie; David Blee; A. Bull; B. W. C. Cooke; L. W. Cox; F. W. Crews; G. Dow;

Sir John Elliot; Messrs. F. D. Y. Faulkner; S. A. Finnis; A. H. Grainger; B. H. Harbour; S. G. Hearn; Earl Howe; Sir Gilmour Jenkins; Messrs. B. X. Jessop; H. C. Johnson;

Messrs. D. R. Lamb; H. C. Lang; D. McKenna; Brigadier-General Sir H. Osborne Mance; Messrs. A. W. Manser; A. G. Marsden; E. J. Morris; G. R. H. Nugent; J. Ratter; Lt.-Colonel A. W. Reed; Mr. T. W. Royle; Major-General G. N. Russell;

Mr. L. M. Sayers; Viscount Simon; Messrs. G. F. Sinclair; G. R. Strauss; S. B. Taylor; J. Taylor Thompson; A. B. B. Valentine; Major-General L. Wansbrough-Jones; Messrs. A. J. Webb; J. S. Wills; Sir Reginald Wilson.

**TRENT MOTOR TRACTION DIVIDEND.**—A final ordinary dividend of 10 per cent is recommended for the Trent Motor Traction Co. Ltd., making a total of 17 per cent for 1956.

#### C.I.M.A.C., 1957

The timetable and a complete list of papers to be read at the International Combustion Engine Congress (CIMAC) at Zurich, June 17 to 25, are now available, and are given below.

Monday, June 17, 2.30 p.m.

(1) *Developments and Experiences with High-Pressure-Charged Diesel Engines.* By Prof. Dr.-Ing. E. Sörensen, M.A.N., Augsburg.

(2) *Four-Cycle Internal-Combustion Engines with the Buchi Telescope Valve System.* By Dr.-Ing. Alfred J. Büchi.

(3) *Turbo-Charging of Diesel Engines—Present State and future Developments.* By H. Herger and Dr.-Ing. E. Jenny, Brown Boveri A.G.

(4) *A Highly-Supercharged Two-Stroke Lightweight Diesel Engine.* By Erik Johansson and Lars G. Thulin, Götaverken.

(5) *Mitsubishi-Nagasaki Highly-Supercharged Two-Cycle Single-Acting Diesel Engine.* By Hideo Fujita, Mitsubishi Shipbuilding & Engineering Co.

Tuesday, June 18, 8.45 a.m.

(6) *Turbo-Charging a Two-Stroke Loop-Scavenged Diesel Engine Using a Pulse System without Scavenging Pump.* By Gunnar Camner, Nydqvist & Holm.

(7) *Mitsui B. & W. Turbo-Charged Two-Cycle High-Speed Diesel Engines.* By M. I. Yamashita, Mitsui Shipbuilding & Engineering Co.

(8) *Development of Pressure-Charged High-Speed Two-Stroke Mitsubishi Tokyo ZC Diesel Engine.* By Kenji Okamura, Mitsubishi Nippon Heavy Industries.

(9) *Exhaust-Gas Turbo-Charging of Loop-Scavenged Two-Stroke Engines and their use in Marine and Rail Propulsion.* By Dr.-Ing. Max Leiker, Klöckner-Humboldt-Deutz.

Wednesday, June 19, 8.45 a.m.

(10) *Gas Turbines as Prime Movers in Steelworks Power Stations.* By Dipl.-Ing. H. Pfenninger, Brown Boveri A.G.

(11) *A Prototype Gas Turbine of 8,000 b.h.p. and its applications in the Marine Field.* By M. Aragou, Soc. des Forges et Ateliers du Creusot.

(12) *Experimental Gas Turbine.* By M. Isogai, M. Fujisawa, and H. Yoshii, Mitsubishi Nippon Heavy Industries.

(13) *Development of the Long-Life Gas Turbine.* By Dr. T. W. F. Brown, Pametrada.

Thursday, June 20, 8.45 a.m.

(14) *Two-Stroke Turbo-Charged Engines and the Influence of Engine and Turbo-Charge Characteristics on the Engine Performance.* By Sören Hansen, Burmeister & Wain.

(15) *The Supercharging of Two-Stroke Cycle Engines with Cross-Scavenging with reference to the Fiat Engines.* By Dr.-Ing. A. Gregoretti, Fiat Grandi Motori.

(16) *Contributions to the Development of the Supercharged Two-Stroke Cycle Diesel Engine.* By W. Kilchenmann, Gebr. Sulzer A.G.

(17) *Experiences and Possibilities of the Supercharged Opposed-Piston Two-Cycle Diesel Engine for Marine Service.* By P. Jackson, William Doxford & Sons Ltd.

(18) *Adaptation of the Gas Output of Free Piston Generators to the Delivery-Pressure Law of Turbines.* By R. Huber, S.E.M.E.

(19) *Analysis of the Combustion Pro-*

cesses in Gas Turbines. By G. Millan, and S. Sanz, Spain.

(20) *Practical Experience with the Use of Residual Fuel Oils in Gas Turbines, and the Influence of Additives Against Fuel Oil Ash Deposition and Corrosion.* By W. Tipler, Shell Petroleum Co.

Friday, June 21, 9.30 a.m.

(21) *Marine Applications of Supercharging.* By A. Vandeghen and P. Laval, S.A. Cockerill-Ougrée.

(22) *The Railway Traction Diesel Engine. Interest and subjections of Supercharging in that field.* By Ch. Tourneur and R. Brun, S.N.C.F.

(23) *Supercharged Diesel Engines for Marine application.* By R. Gasquet, Cie. Navales des Pétroles.

Saturday, June 22, 8.45 a.m.

(24) *Distribution of Heat Flow in High-Duty Internal-Combustion Engines.* By J. F. Alcock and J. V. B. Robson, Ricardo & Co. (Engineers) Ltd.

(25) *The Operational Experience of our Gas-Turbine, Free-Piston, and Diesel Engine Liberty Ship Conversions.* By J. J. MacMullen, U.S.A.

(26) *Appreciation and Closure of the Conference.* By Maurice Roy, President of the Technical Association for Gas Turbines.

The technical sessions detailed above are to be held in the large hall of the Technischen Hochschule in Zurich. Origins of the 25 papers open for discussion are Switzerland 4, France 4, Great Britain 4, Japan 4, Germany 2, Sweden 2, Belgium 1, Denmark 1, Italy 1, Spain 1, and U.S.A. 1.

## Parliamentary Notes

### Retaining Freight Traffic

Lord Forbes, in the House of Lords on March 6, asked if an estimate could be given of the increase in the amount of freight carried by British Railways since fuel oil rationing commenced and what steps the B.T.C. had taken, or proposed to take, in an effort to try to keep a high percentage of the increased freight from reverting to, and once more overcrowding, the roads with heavy lorries when fuel oil rationing ended.

Lord Mancroft, Parliamentary Secretary, Ministry of Defence, replied that the B.T.C. estimated that freight receipts of British Railways recently had been about 11 per cent greater than if the downward trend prior to fuel rationing had persisted. British Railways had continued to negotiate as much new business as possible on a basis designed to offer permanent attractions. With this object they had entered into long and medium term agreements in respect of a considerable quantity of traffic on terms giving significant commercial advantage to customers. Apart from negotiation of rates, British Railways had in a variety of ways given assistance to traders who had transport difficulties as a result of fuel rationing. For example, they had introduced new train services and arranged other additional facilities. Throughout, the aim had been not only to carry more traffic, but to carry it to the customer's satisfaction, and thus to show traders who had not previously relied on rail transport what the railways could do for them.

Lord Forbes asked whether the B.T.C. was to adopt the D.A.F. container, which would mean that more freight could be carried by rail, as this would cut out double handling and provide a door-to-door service.

Lord Mancroft said some units of the D.A.F. container had been brought over from the Continent for trial on British Railways, but no final decision had been reached because of the number of alternatives into which the Commission were still making inquiries.

## Questions in Parliament

### Steel for Railway Modernisation

Mr. George Darling (Hillsborough—Lab.) asked the Paymaster General on March 11 if he would estimate the demands for steel for the atomic power programme, railway modernisation, shipbuilding, including new oil tankers, oil storage plants, coal-mining developments, road building, electricity expansion, other public schemes, and the needs of steel-using manufacturing industries over the next 10 years; and what was being done to increase steel production to meet all those demands.

Mr. Reginald Maudling said he would ask Mr. Darling to await the presentation of the report of the Iron and Steel Board.

The Board was preparing a report on the development of the iron and steel industry over the next six years, which it hoped to submit to the Minister of Power (Lord Mills) in the near future. The report would be laid before Parliament.

Mr. Darling said the people engaged in these vast expansion programmes were complaining about the shortage of steel, and it looked as though some of the projects, particularly in railway modernisation, might have to be slowed down to a great extent.

Mr. Maudling: I think the steel shortage is not so much general as particular, being centred on plates and heavy sections. The sudden expansion of a demand for heavy plate in particular has come as a surprise to the steel industries of the world.

### Wagons for Coal

Mr. R. Moss (Meriden—Lab.) asked the Paymaster General on March 11 if he was aware that for some time now large numbers of railway wagons had not been available for transport of coal from collieries as they were already full of unsaleable coal; and whether he would give a general direction to the National Coal Board to dispose of this coal by whatever means as soon as possible.

Mr. Reginald Maudling, in a written reply: The Board informs me that the mild weather and high production have led to some local difficulties, but that there is no shortage of empty wagons for moving output. This matter is one of day-to-day operations best left to the Board.

## Staff & Labour Matters

### Decision on N.U.R. Claim

The decision of the Railway Staff National Tribunal in connection with the N.U.R. claim for a 10 per cent increase in the rates of pay of salaried and conciliation staff was issued on March 20. The findings of the Tribunal were not unanimous. The Chairman, Sir John Forster, and Mr. A. J. Espley, the Commission nominee, recommended that the basic rates of pay of salaried and conciliation staff (other than footplate staff to whom an increase of 3 per cent had already been applied as from November 26, 1956) shall be increased by 3 per cent from the same date. Mr. E. Hall, the N.U.R. nominee on the Tribunal, considered that the award

should be expressed in the form of an added percentage to the 3 per cent mentioned in the majority report.

### Shipbuilding and Engineering Claims

The threatened strike of shipyard workers after rejection of their claim for a 10 per cent increase in rates of pay began on March 16; reports on the position earlier this week showed the strike to be complete in all main building and repair yards.

The engineering workers, whose claim for a 10 per cent increase was rejected by the Engineering Employers' Federation last week, also called a strike, due to begin tomorrow (Saturday). At the time of going to press it was not known whether it would be a general strike covering the whole industry or a series of guerrilla strikes limited to selected sections.

Leaders of the C.S.E.U. had discussions on March 19 with Sir Wilfred Neden, Chief Industrial Commissioner, Ministry of Labour & National Service.

## Contracts and Tenders

British Railways, Southern Region, have placed the following contracts:—

W. H. Gaze & Sons Ltd., London, S.W.15: new retaining wall, Woodside Fredk. Hayden Limited, Tunbridge Wells, Kent: installation of central heating and hot water services, Tonbridge Motive Power depot

R. Corben & Son Ltd., Maidstone, Kent: new telephone exchange, Ashford, Kent

Warings (Contractors) Limited, Portsmouth, Hants: strengthening and drainage of embankments, Semley-Gillingham, Dorset

Demolition & Construction Co. Ltd., London, S.W.1: removal of arches and turntable structure and reinstatement, Charing Cross Viaduct

The Director General of the India Store Department, Government Building, Bromyard Avenue, Acton, London, W.3, invites tenders for the supply of steel tender tanks without underframes, and steel bogie frames without wheels. See Official Notices on page 352.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from Pakistan for the supply of components required for the fabrication of 600 four-wheel broad-gauge wagons.

The issuing authority is the Ministry of Communications, Government of Pakistan. The tender No. is PRS-57/WAG/4/TDR. Bids should be sent to the Director-General Railways, Railway Division, Ministry of Communications, Government of Pakistan, Karachi. The closing dates, according to item, are April 22, 1957, or April 23, 1957. A copy of the tender documents including schedules is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1.). The reference E.S.B. 6336/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has been advised by the United Kingdom Trade Commissioner at Madras that Ramakrishna Cements, Macherla, Guntur District, Andhra Pradesh, India,



have requested tenders for locomotives, tramlines, and tipping wagons, as follows:—

2 diesel locomotives

5 miles tramlines 18, 24 or 30 lb. per yd. for 2-ft. gauge, complete with fish-plates, points and crossings, round tables and switches

200 tipping wagons, 1 cu. yd., steel body, complete with buffers, springs, and axleboxes.

The equipment is needed for transporting limestone to the cement factory at Macherla from a quarry situated at a distance of about five miles. No tender documents or further specifications exist but it is understood that the Indian firm would accept equipment of any alternative specification which the tenderers consider suitable for the purpose outlined above. The firm state that they would like to receive all quotations within one month from now. Manufacturers interested in this enquiry should send their quotations as soon as possible direct to Ramakrishna Cements, at the same time notifying the United Kingdom Trade Commissioner, Post Box 1575, 6, Armenian Street, Madras, 1, that they have done so. The reference E.S.B./3898/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from India for superheater element tubes as follows:—

(a)

12 superheater element tubes second row for MS, SP classes of engines (EAI/141X/2/NR Part No. HD-352)

12 superheater element tubes third row for MS, SP classes of engines (EAI/141X/3/NR Part No. HD-424)

18 superheater element tubes first row for FO class of engine (EAI/151/1/HD-290)

11 superheater element tubes first row for YD/BAG class of engines (EAI/151/1/NR Part No. HD-275)

11 superheater element tubes second row for YD/BAG class of engines (EAI/153/2/NR Part No. HD-364)

11 superheater element tubes third row for YD/BAG class engine (EAI/153/3/HD 418 NR Part No. HD-418)

2 superheater headers C.I. for F.O. class (EAI/182X)

4 superheater elements bottom row for MAWD class of engine (EAI/NR Part No. HD-427/IR Part No. L/SX-341)

4 superheater element tubes, top row complete with cone and flanges, for DI class of engines (EAI/19576/HD-1301 NR)

(b)

8 superheater element tubes steel first row complete for MS, SP, classes of engines

7 superheater element tubes steel second row complete for MS, SP, classes of engines

18 return bends for element end, steel, 1½ in. O/S dia. 1 ft. long × 8 swg. for HP, HG(A) JU, HP, HG, ex. Bkn. classes of engines

7 element ends, 1½ in. O/S dia. × 1 ft. long × 8 swg. for FO, MS, SP, HG, B & YD classes of engines

4 superheater element tubes steel first row complete for FO, classes of engines

5 superheater element tubes steel second row complete for FO, classes of engines

7 superheater element tubes steel first row complete for YD, (BAG) class of engines

7 superheater element tubes steel second row complete for YD (BAG) class of engines

7 superheater element tubes steel third row complete for YD (BAG) class of engines

12 superheater elements bottom row for MAWD class of engine

8 superheater element tubes top row, complete for DI class of engines

The issuing authority is the Director General of Supplies and Disposals. The tender No. is (a) P/SW2/18884-G/1; (b) P/SW2/19580-G/1. Bids should be sent to the Director General of Supplies and Disposals, Shahjahan Road, New Delhi. The closing date is (a) April 2, 1957; (b) April 3, 1957. A set of tender documents, including drawings but not specifications, is available for loan to United Kingdom firms on application to the Branch (Lac House, Theobalds Road, W.C.1). The reference (a) ESB/6148/57, (b) ESB/6150/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from Thailand for carbon rails for welded track as follows:—

1. 108,300 rails, 12 m. long, unit weight 416.64 kg.

2. 550 rails, 11.93 m. long, unit weight 414.21 kg.

3. 28,600 fish plates, unit weight 9.9 kg.

4. 119,400 fish bolts and nuts, unit weight, 55.9 kg. per 100

5. 1,840,000 bearing plates, unit weight 4.875 kg.

6. 81,500 bearing plates, unit weight 4.45 kg.

7. 8,253,300 track spikes, unit weight 0.31 kg.

8. 123,900 spring washers, unit weight 28 kg. per 1,000

9. 1,319,100 rail anchors, unit weight 1.02 kg.

Total weight in metric tons: item 1, 45,122.112; 2, 227.816; 3, 283.140; 4, 66.744; 5, 8.970; 6, 362.675; 7, 2,558.523; 8, 3.469; 9, 1,345.482.

The issuing authority is the Railway Organisation of Thailand. The tender No. is B.E.2500. Bids should be sent to the Superintendent of Railway Stores, Railway Organisation of Thailand, Kasatsuk Bridge, Bangkok. The closing date is April 4, 1957. A copy of the tender documents including specifications and drawings is available for loan to United Kingdom firms on application to the Branch (Lac House, Theobalds Road, W.C.1). The reference E.S.B./5532/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the closing date of the call from Australia for railcar bodies and underframes, and railcar power and under-floor equipment, reported on page 320 of our issue of March 15, has been extended to April 25, 1957.

CONSOLIDATED SIGNAL CO. LTD. DIVIDEND.—The profit of the Consolidated Signal Co. Ltd. for the year ended September 30, 1956, was £40,631, compared with £40,379 for the previous year, to which is added £12,052 brought forward from 1954-55. The directors recommend payment of a dividend of 6 per cent on the cumulative preference stock and of 34 per cent on the ordinary stock.

## Notes and News

### Assistant Engineer (Mechanical) Required.

—An assistant engineer (mechanical) is required for the London Office of the Crown Agents for Oversea Governments & Administrations. See Official Notices on page 352.

### Signal and Signal Telegraph Inspectors Required.

—Applications are invited for the posts of signal inspector and signal telegraph inspector required for the Nigerian Corporation. See Official Notices on page 352.

### Diesel Assistant to Motive Power Superintendent Required.

—Applications are invited for the post of diesel assistant to motive power superintendent required for British Railways, Western Region. See Official Notices on page 352.

### Vacancy for Civil Engineer.

—London Transport require a civil engineer, preferably between 35 and 50 years of age, with wide experience both in design and carrying out of heavy engineering works. See Official Notices on page 352.

### Draughtsmen and Checkers Required.

—Structural designers, design, detail and layout draughtsmen and checkers required for the railway traction drawing office of Pirelli—General Cable Works Limited, Eastleigh, Hants. See Official Notices on page 352.

### Vacancy for Chief Draughtsman.

—Applications are invited for the post of Chief Draughtsman required by Robert Stephenson & Hawthorns Limited, a member of the English Electric Group, for its locomotive Works at Newcastle-upon-Tyne. See Official Notices on page 352.

### Vacancies for Senior and Junior Draughtsmen.

—The General Electric Co. Ltd., Witton, Birmingham, has vacancies for senior and junior draughtsmen for control gear design and layout work for a.c. and d.c. electric and diesel-electric rolling stock. See Official Notices on page 352.

### Diesel Traction Engineer Required.

—A diesel traction engineer is required by a mining company in West Africa to assume charge of maintenance, running and repair of diesel electric locomotives, diesel shunters and wagon stock on privately-owned railway. See Official Notices on page 352.

### Special Trains for B.I.F.

—We have been informed that the special train, each weekday (except May 11) from May 6 to 17, from Euston to Castle Bromwich, in connection with the British Industries Fair, will leave Euston at 8.55 a.m. and arrive at Castle Bromwich at 11.18 a.m., and not at 8.37 a.m. with an arrival at 11 a.m., as stated in our March 8 issue.

### Increased Export Traffic by Rail.

—The greatest monthly increase in small consignments for export through Curzon Street station since the special arrangements for this traffic were started in July last is reported by the London Midland Region. In the four weeks ended February 9, there were 11,102 consignments against 7,841 in the previous month. Many expressions of appreciation of the service are reaching railway headquarters by telephone and letter from Birmingham traders. The scheme includes collection of small parcels of goods for export by a special cartage service and amalgamation into

through truck loads to shipside or dock at London, Liverpool, and Birkenhead and, to a smaller extent, to Manchester, Southampton, Hull, Goole, and Newcastle. The railways make no extra charge for the special arrangements.

**British Railways Locomotive Building Programme.**—The wheel arrangement of the Type "B" diesel-electric locomotives being built by Brush Traction Limited, is A1A—A1A, and not CC, as stated on page 319 of our March 15 issue.

**Head-on Collision in Finland.**—Two express passenger trains collided head-on at speed on a single line at Kuurila, some 80 miles north of Helsinki, in Finland, on March 15. Preliminary reports put the dead at at least 24 and the number of injured at 50. The trains, both running late, collided in a blizzard. Cranes were sent from Tammerfors and Tavastehus and a company of infantry from Parola assisted in clearing the wreckage.

**Improved London Bus Operation.**—In an effort to retain the benefits to passengers of improved bus operation, because of clearer streets, since petrol rationing was introduced, London Transport has appointed Mr. J. H. Giffin, as recorded in our Personal column this week, to the new post of Superintendent (Running) of the Central London bus fleet. He will be in charge of a large force of specially-trained inspectors controlling buses in the inner London area. They will turn, adjust, and space buses as required to overcome street congestion when traffic returns to normal. More control points are being established and roadside telephones are being installed to keep the inspectors in touch with the overall traffic situation.

**New Building for Scottish Region Signal Engineer.**—New premises in Gordon Street, Glasgow, have been taken over by Mr. L. J. M. Knotts, Signal Engineer, Scottish Region, British Railways, to accommodate his headquarters staff, who had previously been located in various parts of the city. This concentration of staff in the one building will facilitate the work entailed in the modernisation programme for the

Scottish Region. The premises were formally opened on March 4 by Sir John Denholm, Member of the Scottish Area Board, in the presence of Sir Ian Bolton, Chairman, and Mr. P. L. Meldrum, Member; and Mr. James Ness, General Manager, Scottish Region, British Railways. An exhibition of the work performed by each section was arranged for the occasion and included photographs, drawings, diagrams, signal and telecommunications apparatus. The illustration below shows, from left to right, Mr. Knotts, Mr. Meldrum, Sir Ian Bolton, and Sir John Denholm.

**Steel Production in February.**—Steel production in February was at the rate of 432,100 tons a week. It exceeded the previous peak output rate which was 426,400 tons a week reached in November, 1956. Pig iron output was at the rate of 267,600 tons a week. This was also a higher rate than in any previous month.

**"The Hedgerow."**—The London Midland Region Dramatic Society presented "The Hedgerow," a new three-act play by Allen Montgomery, a member of the society employed by British Railways as a clerk at Euston, at the Rudolf Steiner Theatre on March 14, 15, and 16. The play, interesting as it is, and set in Medieval Europe, is probably of a kind unsuited to the talents of the players. Pamela Hearn, however, was outstanding as Annabel, the peace-loving daughter of Landowner Seth, played by John Boddington. Unbalanced dialogue made it difficult for the supporting cast to do themselves justice.

**Improved Fuel Supplies.**—From April 17 the basic petrol ration will be increased by 50 per cent and the coupon rationing scheme for diesel oil will end on April 1. Buses and coaches using diesel oil will then be freed from rationing and those using petrol will be given enough coupons to put them on a par with diesel vehicles. Goods vehicles using diesel oil will be freed from rationing on April 1 and those using petrol will continue to receive the allocation already announced but will be considered more generously for supplementary allowances. The price of petrol

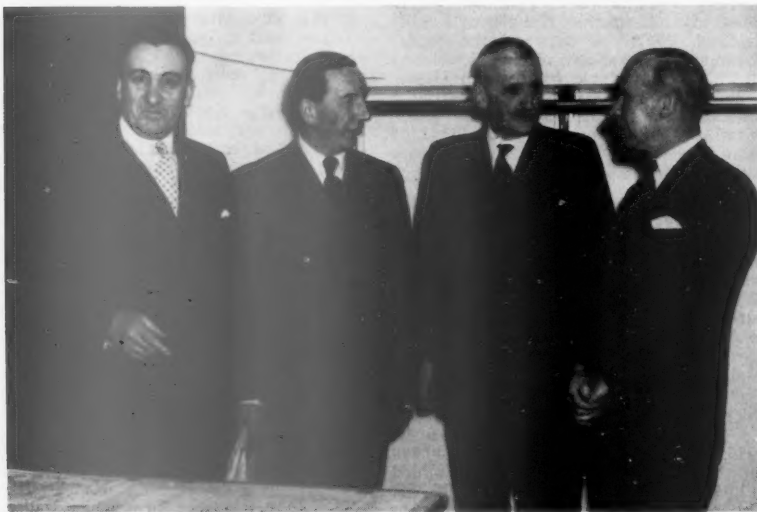
was increased by 1d. a gallon from March 19, an increase estimated to cost the British Transport Commission £100,000 a year. British Road Services expect to be able to run normal services with the end of diesel oil rationing, and London Transport will restore normal road services as soon as possible after April 1. As we went to press, several large oil companies had announced increases of 1½d. a gallon on diesel oil, of which British Railways used more than 7,000,000 gallons in 1956.

**English Electric at A.S.E.E. Exhibition.**—Nine departments of the English Electric Co. Ltd. are showing typical products at the Electrical Engineers (A.S.E.E.) Exhibition at Earls Court which commences April 9. The departments include electrical plant sales, fusegear, fractional horsepower motor, industrial motor, meters, relays and instruments, transformer, switchgear and welding divisions of the company.

**Derby Carriage & Wagon Works Training School Opened.**—A new training school at the Derby Carriage & Wagon Works was opened on March 19, by Sir John Benstead, Deputy Chairman of the British Transport Commission, in the presence of Lord Rusholme, Member of the Commission and Chairman, London Midland Area Board; Mr. David Blee, General Manager of the London Midland Region, and other senior officers of the Commission and of British Railways. The new school will provide preliminary practical and theoretical instruction of a high order to every entrant for one year and will cover a wide field. After 12 months the apprentice trainee will be transferred to the Works and training continued until the age of 21. The school is fitted out as a complete workshop and will accommodate 90 apprentice trainees at one time.

**Railway Charges for Bicycles and Perambulators.**—A revised scale of charges to apply to both bicycles and perambulators accompanying passengers by train is to be introduced by British Railways on April 1. It will replace the present separate scales. The new charges are related to the ordinary single second class passenger fares for equivalent distances, and will remove most of the anomalies under the present scales where for some journeys the charges for bicycles and perambulators are higher than for passengers, especially where the latter travel on cheap tickets. Most of the new single rates up to 200 miles, and return rates up to 100 miles, will be appreciably cheaper than at present, but there will be increases in the higher mileage zones. Except for the initial mileage zone the single rates represent one-half of the average single passenger fare for the equivalent distance, the return rates being one-half or one-third higher than the single rates according to distance.

**Fishguard & Rosslare Railways & Harbours Company Results.**—The revenue account balance of the Fishguard & Rosslare Railways & Harbours Company for the half-year to December 31, 1956, stood at £35,563. Debenture interest took £13,904 and dividend on the new guaranteed 3½ per cent preference stock £21,659. No dividend is declared on the ordinary shares or on the new 3½ per cent preference stock, 1914, as these are held by the British Transport Commission and Coras Iompair Eireann, the parties guaranteeing the interest on the capital represented thereby. Capital expenditure for the half-year amounted to £51,933, of which



At the opening on March 4 of the new headquarters in Glasgow for the Signal Engineer, Scottish Region

£48,277 was taken for constructional work and installation of additional equipment in s.s. *St. Andrew, St. David and St. Patrick*.

**Central Wagon Co. Ltd.**—By maintaining the final payment at 10 per cent, the Central Wagon Co. Ltd. hold the dividend at 15 per cent. Group profits for the year ended September 30, 1956, rose to £157,109 (from £98,658 for 1954-55), after tax of £192,288 (£128,741).

**Vickers Final Dividends for 1956.**—At a meeting of the board of Vickers Limited on February 21 final dividends in respect of the year 1956 were declared of 2½ per cent on the preferred 5 per cent stock, 2½ per cent on the 5 per cent preference stock, and £2 3s. 9d. net per £100 stock on the cumulative preference stock. Payment will be made on March 29.

**British Railways Cork Office Re-opened.**—The Office of the District Agent, British Railways, at 98, Patrick Street, Cork, has been reconstructed and modernised and was officially opened on March 13, by the Lord Mayor of Cork. Mr. Arthur Chamberlain, Member, Western Area Board, British Transport Commission, attended the ceremony, together with other distinguished guests, and afterwards presided at a luncheon given in the Imperial Hotel to mark the occasion. Before the opening, Mr. Chamberlain; Mr. A. C. B. Pickford, Chief Commercial Manager, Western Region, British Railways, Paddington; and Mr. G. B. Gray, General Agent for British Railways in Ireland, paid a courtesy call on the Lord Mayor. The office is essentially commercial and fulfils the functions of a commercial transport organisation in a city. Tickets are issued, accounts may be settled, and inquiries of a general nature dealt with. It is a clearing house for railway information and is the centre of British Railways' canvassing organisation in the South-West of Ireland. The accompanying photograph shows,

from left to right, Councillor A. A. Healy (front); Mr. F. Marsden, Assistant Irish Traffic Superintendent, Western, London Midland, and Scottish Regions; Mr. A. C. B. Pickford, Chief Commercial Manager, Western Region; Alderman S. Casey, Lord Mayor of Cork; Mr. Arthur Chamberlain, Member, Western Area Board, British Transport Commission; Mr. F. Lemass, General Manager, C.I.E.; Mr. J. W. Tonge, Public Relations & Publicity Officer, London Midland Region; Mr. C. J. Rider, Public Relations & Publicity Officer, Western Region; Mr. H. E. B. Cavanagh, Architect, Western Region.

**Morgan Crucible Co. Ltd. Exhibits at Olympia.**—The exhibits of the Morgan Crucible Co. Ltd., of Battersea Church Road, London, S.W.11, at the Instruments, Electronics & Automation Exhibition at Olympia, London, on May 7-17, will include a comprehensive range of electrical and mechanical carbon engineering components, such as bearings, sealing rings, thrust washers, and valve anodes. Other exhibits will include Morganite sintered metal friction faced clutch plates used in power transmission, while Morganite Resistors Limited exhibits will feature a full range of fixed and variable resistors.

**British Standard for Rheostats.**—This is the first revision of B.S. 280 since the standard was issued in 1928. The new publication takes into account modern engineering practice, particularly with regard to new types of insulating material and their classification. Three classes of rheostats have been specified in relation to their mechanical duty. Permitted limits of temperature rise have been related to modern insulating materials as classified in B.S. 2757. The temperature limits are those long established as satisfactory in this and other countries. Other changes in the specification proper are: a re-classification of the types of enclosure; and the introduction of a new

section on service conditions. In addition, the routine tests have been amended, and type tests have been specified. There are three additional appendices to the standard. The standard was prepared under the authority of B.S.I.'s Electrical Industry Standards Committee. Copies of this standard may be obtained from the British Standards Institution, 2, Park Street, London, W.1. Price 5s.

**New Colour Scheme for York Station.**—York Station is being painted in colours which in future will be the standard for all North Eastern Region stations, depots and installations as they become due for repainting. The principal colour is a strong blue often termed oriental blue. Other colours being used include silver birch, light grey, mid-grey and the regional colour of deep orange. A protective paint, colour natural steel, will be used for roof members which have to withstand the effects of smoke. The task of painting York Station is being undertaken by the staff of the Chief Civil Engineer's Department. Mobile hydraulic platforms are in use for the painting of high portions of the roof structure thus dispensing with the need for expensive scaffolding.

## Forthcoming Meetings

Open currently and until further notice.—British Transport Commission: Historical Exhibition "Transport Treasures" in Shareholders' Meeting Room, Euston Station, from 10 a.m. to 6 p.m. on weekdays, and 2 to 6 p.m. on Sundays. Admission 6d.

April 1 (Mon.).—Historical Model Railway Society, at the Headquarters of the Stephenson Locomotive Society, 32, Russell Road, London, W.14, at 7 p.m. Talk on "Idle thoughts of a railway enthusiast," by Mr. R. C. J. Day.

April 2 (Tue.).—Permanent Way Institution, Leeds & Bradford Section, at the British Railways Social & Recreation Club, Ellis Court, Leeds City North Station, at 7 p.m. Paper on "Work study as applied to the permanent way," by Mr. G. Stevens, Assistant to C. C. E. on Productivity & Planning, Southern Region, London.

April 3 (Wed.).—Society of Chemical Industry, at the Technical College, Newport, Mon., at 7 p.m. Paper on "The position of structural steel against corrosion," by Mr. J. C. Hudson. (Joint meeting with South Wales Section).

April 3 (Wed.).—Institution of Railway Signal Engineers, York Section, at the Signalling School, Toft Green, York, at 5.30 p.m. Annual general meeting.

April 3 (Wed.).—Electric Railway Society, at the Fred Tallant Hall, 153, Drummond Street, London, N.W.1., at 7.15 p.m. Colour films on "North American Rapid Transit," by Mr. H. Cuff.

April 4 (Thu.).—The Model Railway Club, at Caxton Hall, Westminster, S.W.1., at 7.45 p.m. Talk on "The railways of the Isle of Wight," by Mr. A. B. Macleod.

April 5 (Fri.).—Institution of Locomotive Engineers, at the Dorchester Hotel, Park Lane, London, W.1., at 12 for 1 p.m. Annual luncheon.

April 5 (Fri.).—The Railway Club, at 57 Fetter Lane, London, E.C.4., at 7 p.m.



Photo]

[Cork Examiner

Officers of British Railways and Coras Iompair Eireann with the Lord Mayor of Cork at the reopening of the reconstructed Office of the District Agent, British Railways, Cork



Paper on "Railway history through Acts of Parliament," by Mr. C. R. Clinker.

April 5 (Fri.).—Railway Correspondence & Travel Society, London Branch, at the Railway Clearing House, 163, Eversholt Street, London, N.W.1., at 7.15 p.m. Paper on "The Sligo, Leitrim & Northern Counties Railway," by Mr. N. W. Sprints.

April 6 (Sat.).—Railway Correspondence & Travel Society, at the Charing Cross Hotel, London. Annual dinner.

April 6 (Sat.).—Permanent Way Institution, Leeds & Bradford Section, at 9.45 a.m. Morning visit to "Trumix Concrete" works, Cross Green Lane, Leeds, 9.

April 6 (Sat.).—Stephenson Locomotive Society, at 32, Russell Road, Kensington, W.14, at 3 p.m. Annual general meeting.

## Railway Stock Market

As was to be expected, the shipyard strike and the threatened engineering strike have overshadowed stock markets, where values have declined sharply as compared with a week ago. Selling was not heavy, however, and later in the week the lower share prices attracted buyers. British Funds also received, partly because the upward trend in the Treasury Bill rate in the past two weeks has lessened talk of a further reduction in the bank rate in the near future.

Among foreign rails there were few movements and many quotations were scarcely tested by dealings. United of Havana second income stock, however, was rather more active and strengthened from 8 to 8½, though the consolidated stock remained at 2½. Taltal Railway shares have changed hands at 11s. and elsewhere, San Paulo Railway 3s. units strengthened a few pence to 3s. 4½d. Costa Rica ordinary stock remained at 24½, Chilean Northern 5 per cent debentures at 44½ and Dorada ordinary stock was again quoted at 52½. International of Central America eased to 35½.

Canadian Pacific moved up from \$60½ a week ago to \$62½ under the influence of the full annual statement, and the preference stock and 4 per cent debentures were £60½ and £70½ respectively. Elsewhere, White Pass shares at 22½ have been quite well maintained as compared with a week ago.

Nyasaland Railways shares were 12s. 7½d. with the 3½ per cent debentures 60; Midland of Western Australia stock was quoted at 8½; while among Indian stocks, Barsi were 18½.

Antofagasta ordinary stock remained active, but eased further from 30½ to 29½, though the preference stock gained a point at 46. The 5 per cent (Bolivia) debentures were 93½.

The shares of locomotive building and engineering companies have been relatively steady despite the prevailing trend in stock markets, sentiment having been helped by the prospect of improved earnings in the future arising from the big railway modernisation programme. Beyer Peacock shares at 43s. were 1s. lower than a week ago, but Gloucester Wagon 10s. shares kept around 14s. and Charles Roberts around 11s. 6d., while Wagon Repairs 5s. shares were again 13s. 3d. G. D. Peters have been firm at 30s. xd., helped by the good impression created by the annual report and the references in Mr.

Alex Dowie's statement to the company's good order book. North British Locomotive shares eased to 12s. 9d., but Birmingham Wagon shares at 21s. 7½d. were virtually the same as a week ago and Hurst Nelson eased to 36s. Westinghouse Brake came back from 80s. to 78s. 3d. The shares of the Dowty group have risen well to 34s. 6d. under the influence of the raising of the tax free interim dividend from 3 to 4 per cent.

Vickers dropped back further from 42s. 6d. a week ago to 39s. 9d. and Cammell Laird 5s. shares from 11s. 9d. to 11s. and other shares with an active market also reflected the general trend closely. Associated Electrical were 61s. 6d. compared with 64s. a week ago and General Electric 53s. compared with 55s. 6d. Crompton Parkinson 5s. shares were 16s. 1½d. T. W. Ward held steady at 70s. xd. and Ruston & Hornsby at 32s. 6d. were within a few pence of the level a week ago, while British Aluminium at 66s. 9d. were inclined to strengthen after an earlier decline. Steel shares were dull with the discount on the shares of the Steel Company of Wales down to 9d., though as time proceeds a small premium is considered probable.

## OFFICIAL NOTICES

**DRAUGHTSMEN**, Civil Engineering, with experience of railway work, wanted for Consulting Engineers' Office in Westminster. 5-day week. Contributory Pension Scheme. Progressive position. Apply with full particulars of age and experience to Box No. 554, c/o Charles Barker & Sons, Ltd., Gateway House, London, E.C.4.

**SALES AND SERVICE ENGINEER** with Railway background required to set up a new department to deal with sales of Roller Bearing Axle Boxes of established reputation. Applicants should submit full details of their education and previous Railway background. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**THE GENERAL ELECTRIC CO. LTD.**, Witton, Birmingham, requires **SENIOR and JUNIOR DRAUGHTSMEN** for control gear design and layout work for a.c. and d.c. electric and diesel-electric rolling stock. Men with mechanical, electrical or automobile experience will be considered. The opportunities for advancement in this rapidly expanding department are good. Assistance with housing will be given to successful applicants. Please write with full details of previous experience to the Staff Manager.

**STRUCTURAL DESIGNERS, DESIGN, DETAIL and LAYOUT DRAUGHTSMEN and CHECKERS** are required in our Railway Traction Drawing Office for all aspects of work concerning railway overhead electrification. Experience in this class of work is desirable but not essential, and applicants should have had some structural and/or railway experience. Applicants should write stating age, experience and salary required to the Manager, Overhead Lines Department, Pirelli-General Cable Works Limited, Eastleigh, Hants.

**CHIEF DRAUGHTSMAN** required by Robert Stephenson & Hawthorns Limited, a member of the English Electric Group, for their Locomotive Works at Newcastle upon Tyne. Applicants must have a sound engineering training, with adequate experience of the design of steam locomotives, and preferably also of diesel locomotives and transmissions. Minimum educational qualifications H.N.C. and exemption from parts I and II of the A.M.I.Mech.E. Examination. Applications should be addressed to the Manager, Robert Stephenson & Hawthorns Limited, Forth Banks Works, Newcastle upon Tyne, 1, stating age, training, qualifications and experience.

**LONDON TRANSPORT** require **CIVIL ENGINEER**, preferably between ages 35 and 50, with wide experience both in design and carrying out of heavy engineering works (i.e., earthworks, drainage, bridging, retaining walls, heavy foundations, reinforced concrete and tunnelling); experience in general railway construction advantageous. Candidates should be Chartered Civil Engineers, fully capable of organising and directing a section of the Drawing Office in preparation of schemes, estimates, design, contract drawings, bills of quantities and specifications, and should have kept themselves abreast of modern design techniques. Salary range: £1,150 to £1,350. Medical examination; free travel. Applications within 14 days to Recruitment and Training Officer (F/EV 625), London Transport, 55, Broadway, S.W.1.

**DIESEL TRACTION ENGINEER** required by Mining Company in West Africa to assume charge of maintenance, running and repair of diesel electric locomotives, diesel shunters and wagon stock on privately-owned Railway. Applicants should state concisely experience with traction diesels and associated electrical gear in diesel electric locomotives. State full details engineering qualifications. This is a position of importance, and a high salary will be paid commensurate with experience and qualifications. Tours approximately 15 months, with liberal leave in U.K. on full salary. Return passage paid. Initial kit allowance, free furnished quarters and medical attention. Contributory Pension Scheme, Life Assurance and Dependents' Income Scheme. Write, with copies references, stating age, married or single, to Sierra Leone Development Co., Ltd., Dept. E1, City-Gate House, Finsbury Square, E.C.2.

**ASSISTANT ENGINEER (MECHANICAL)** required for their London Office by the Crown Agents for Oversea Governments and Administrations for appointment to pensionable establishment on probation for two years. Salary scale £765 × £25 = £840 × £30 = £990 × £40 = £1,190 a year. The £765 minimum is linked to entry at age 25, and is subject to increase at rate of one increment for each year above that age up to 34. Fully qualified officers at least 27 years old may be eligible for special increase of £75 after two years' service. Prospect of promotion. Candidates should have passed qualifying examination A.M.I.Mech.E. or equivalent examination. They should have served apprenticeship or pupillage in the rolling stock department of British Railways or with carriage and wagon builders or a firm specialising in manufacture wharf or railway break-down cranes. They should also have subsequent drawing office experience in design of carriage and wagons and railcars or cranes, together with a sound knowledge modern workshop practice. Duties include preparation of contract specifications, examination and approval of drawings, design calculations, and technical correspondence. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience, and quote M2A/40807/RA.

**THE NIGERIAN RAILWAY CORPORATION** invites applications for appointment as:

(i) **SIGNAL INSPECTOR**.  
(ii) **SIGNAL TELEGRAPH INSPECTOR**.  
Salary of each post: £700 × £50 = £1,200, plus overseas pay of £300 per annum.

Appointments will either be pensionable, or on contract terms, with a gratuity of 20 per cent of total emoluments per annum.  
Qualifications: (i) Signal Inspector.—Candidates, aged not less than 28 years, must have a sound technical and practical experience in the construction, installation, repair and maintenance of mechanical signalling apparatus, including the construction and installation of Double Wire Signalling equipment. They must have served their time in the Signal Department of a first-class railway, or a signal manufacturing company. A knowledge of the design and working of Electric Train Staff Instruments and Telephone Train Control apparatus would be an asset. Candidates should be members of the Institution of Railway Signal Engineers or qualified as Associates.

(ii) Signal Telegraph Inspectors.—Candidates must possess working knowledge and experience of installation and servicing of General Electric Company's Telephone Train Control apparatus. Railway Signal Company's Electric Train Staff Instruments and mechanical signalling apparatus, particularly Double Wire apparatus, as manufactured by Westinghouse Brake & Signal Company. Preference may be given to Associates of the Institution of Railway Signal Engineers or to Graduates of the Institution of Electrical Engineers.

Terms of service provide for tours of 15 months each, seven days' full pay leave per month of service, free passages for officer and wife, and separate domicile allowance of £75 p.a. each in respect of maximum of two children while in U.K., or cost of their passages to and from Nigeria, if under 18 years of age. Part furnished quarters provided at low rental. Outfit allowance £60, payable on first appointment.

Applications to be addressed to: The London Representative, Nigerian Railway Corporation, 11, Manchester Square, London, W.1.

**AN** old established Company with modern Engineering Facilities, supported by extensive Foundry capacity, is seeking new ideas, or the more efficient application of old ideas, in mechanical, hydraulic or automotive engineering, particularly in the form of complete assemblies. Design should be covered by patents wherever possible, and preferably from individual designers seeking production facilities. Replies to this advertisement must be from principals only and should be sent in the first place to Box 266, *The Railway Gazette* 33, Tothill Street, London, S.W.1.

**THE Director-General of India Store Department**, Government Buildings, Bromyard Avenue, Acton, London, W.3, invites tenders for the supply of:  
2 **TENDER TANKS**, steel without underframes. Capacity of tanks to be 3,500 l. galls. water and 13.5 long tons coal. 4 **BOGIE FRAMES**, steel without wheels. To I.R.S. Specification R.32/54, with particular Specification (of November, 1956) as far as is applicable. Forms of tender may be obtained from the above address on or after the 22nd March, 1957, at a fee of 10s., which is not returnable. If payment is made by cheque, it should please be made payable to "His Commissioner for India." Tenders are to be delivered by 2 p.m. on Monday, 6th May, 1957. Please quote reference No. 95/56/RLY.

